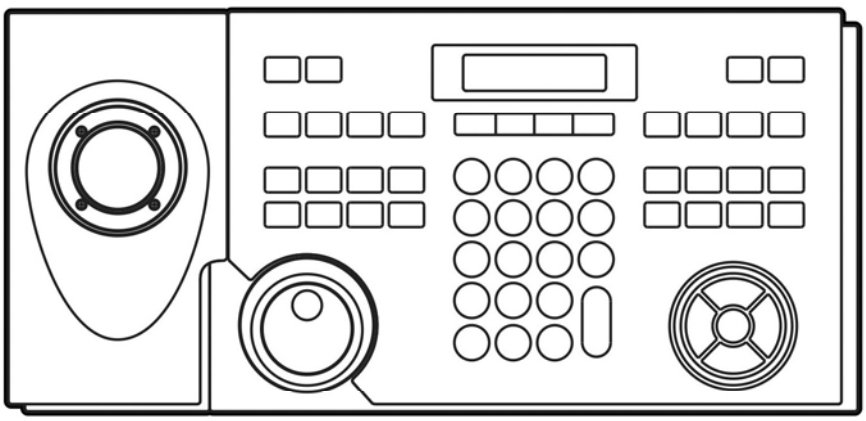
EVOnet-KBD1000 (S43909)

Network Keyboard



Network Keyboard

User Manual

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

The software included in this product contains some Open Sources. You may obtain the complete corresponding source code from us. See the Open Source Guide on the software CD (OpenSourceGuide\OpenSourceGuide.pdf) or as a printed document included along with the User's Manual.

Important Safeguards

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Cleaning
Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments
Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

6. Placement and Accessories
Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment.

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

Do not place this equipment in an enclosed space. Sufficient ventilation is required to prevent an increase in ambient temperature which can cause malfunction or the risk of fire.

7. Power Sources
This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

8. Power Cords
Operator or installer must remove power and TNT connections before handling the equipment.

9. Lightning
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.

10. Overloading
Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

11. Objects and Liquids

Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

12. Servicing
Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

13. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have fallen into the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance ─ this indicates a need for service.

14. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

15. Safety Check
Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

16. Field Installation
This installation should be made by a qualified service person and should conform to all local codes.

17. Tmra
A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.

WEEE (*Waste Electrical & Electronic Equipment*)

Correct Disposal of This Product
(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

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Chapter 1 — Introduction

1.1 In This Manual

This manual is intended for users of the network keyboard and includes instructions for using and managing it on a network.

1.2 Features

This network keyboard controls Multifunctional Network Matrix Switchers (MMXs), Digital Video Recorders (DVRs), network video transmitters, network video receivers and network cameras remotely via network connection. Also, the network keyboard controls DVRs and PTZ cameras connected to the network keyboard via RS485 connection. The network keyboard can be accessed, configured and managed by using the INIT (Integrated Network Installation Tool) program.

- Remote control of MMXs, DVRs, network video transmitters, network video receivers and network cameras via network connection
- Control of DVRs and various models of PTZ cameras via RS485 connection
- Two-way audio communication
- Convenient firmware upgrades via either the USB port or Ethernet
- Firmware duplication and autorecovery functions to enhance system stability
- Management of multiple network keyboards via network connection
- Recalls of a maximum of 100 macros and a maximum of 8 mapping functions
- Programmable by using the LCD screen
- Control of DVRs or network video receivers by using a USB mouse via network connection

Compatible Devices

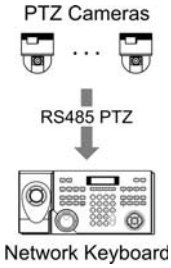
- MMX (Multifunctional Network Matrix Switcher)
- DVR (Digital Video Recorder)
- Network Video Transmitter
- Network Video Receiver
- Network Camera
- PTZ Camera

1.3 Package Contents

- Network Keyboard Body
- Joystick (Removable) and Joystick Cable
- DC Adapter (5V)
- Power Cord
- Installation CD (INIT)
- User’s Manual (Network keyboard, INIT)

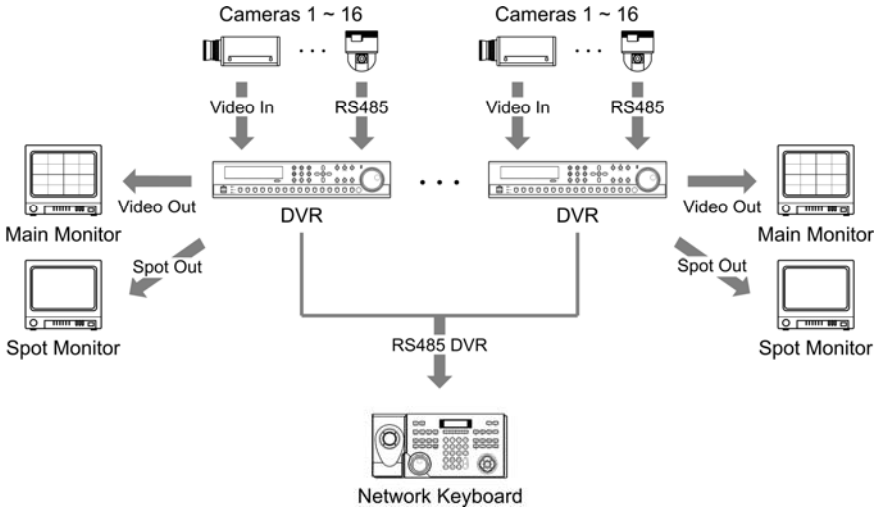
1.4 Typical Applications

PTZ Camera Control



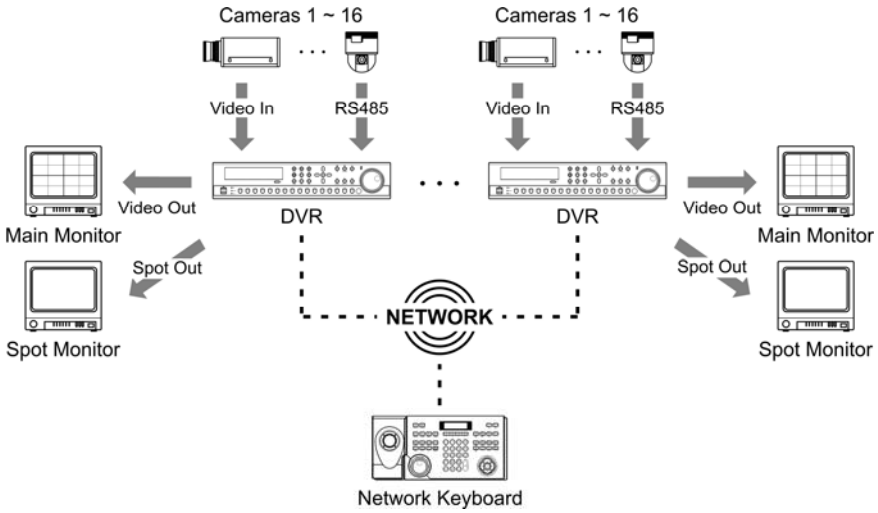
You can control PTZ cameras by using RS485 connection. Refer to Chapter 2 — Installation, 2.1 PTZ Camera Registration (p. 9) for details.

DVR System Control via RS485



You can control DVRs and connected PTZ cameras to the DVRs by using RS485 connection. Refer to Chapter 2 — Installation, 2.2 DVR System Registration, Basic Mode (p. 10) and Chapter 3 — Operation, 3.3 DVR System Control (p. 19) for details about installation and operation.

DVR System Control via Network

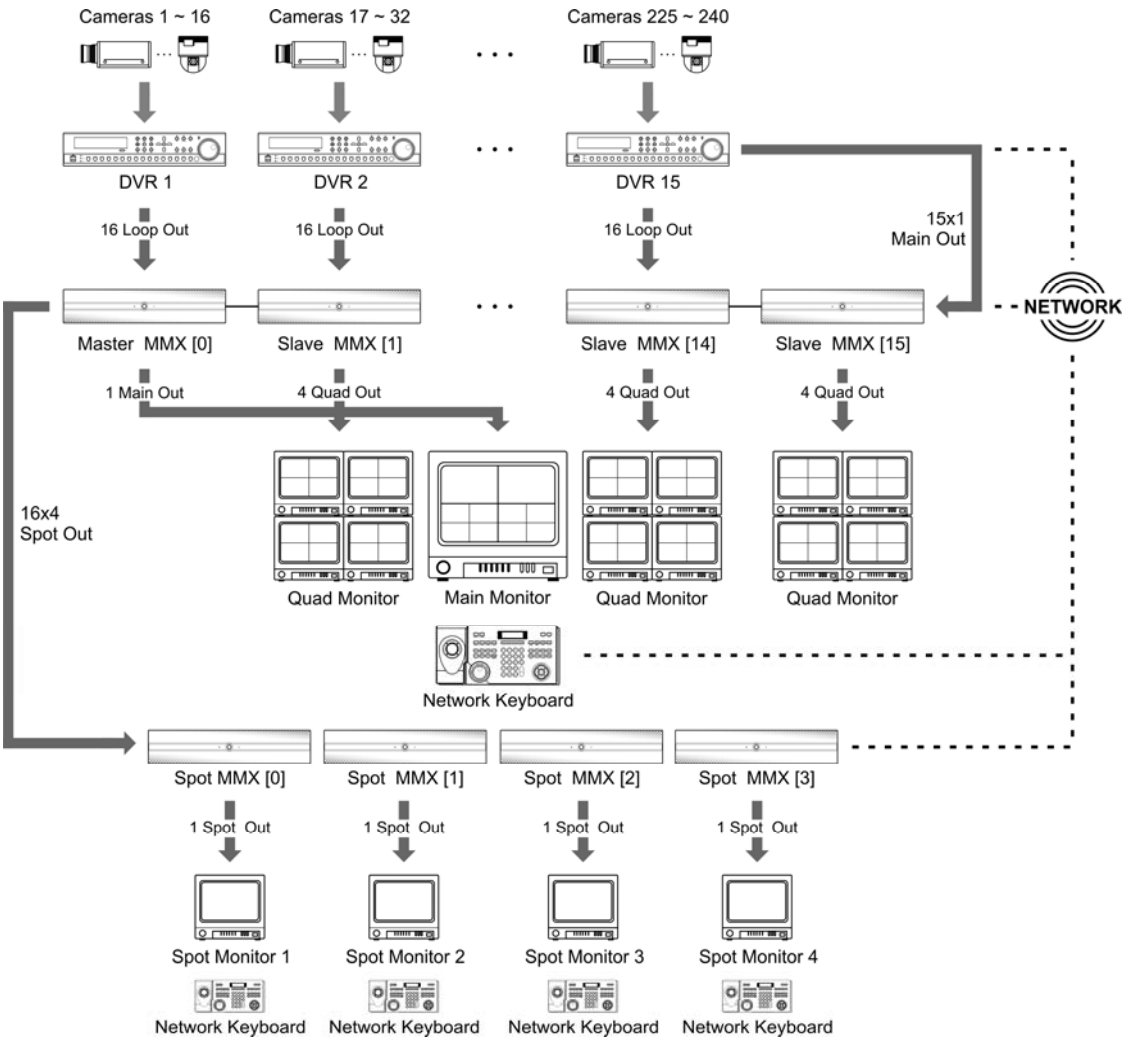


You can control DVRs and connected PTZ cameras to the DVRs by using network connection. Refer to Chapter 2 — Installation, 2.2 DVR System Registration, Advanced Mode (p. 10) and Chapter 3 — Operation, 3.3 DVR System Control (p. 19) for details.

Network Matrix System Control

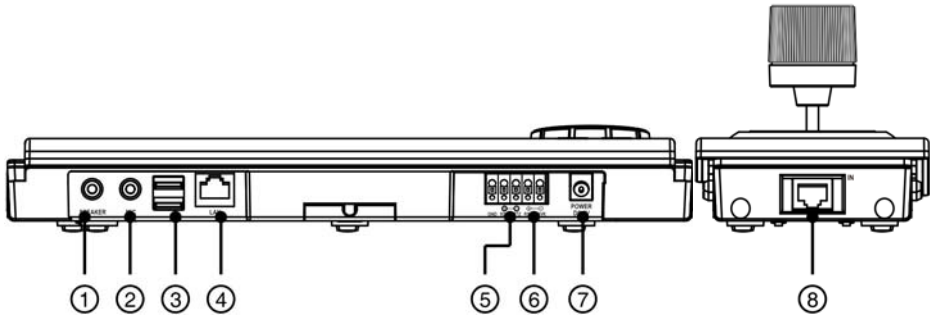
You can control network video transmitters, network cameras and network video receivers by using network connection. Refer to Chapter 2 — Installation, 2.3 Network Matrix System Registration (p. 12) and Chapter 3 — Operation, 3.4 Network Matrix System Control (p. 21) for details.

MMX System Control



You can control MMXs, connected DVRs to the MMXs and connected PTZ cameras to the MMXs or the DVRs by using network connection. Refer to Chapter 2 — Installation, 2.4 MMX System Registration (p. 14) and Chapter 3 — Operation, 3.5 MMX System Control (p. 23) for details.

1.5 Rear Panel



No.	Designation	Details
1	Speaker	Connect to an amplifier (Line-out). The network keyboard does not have amplified audio output, so you will need a speaker with an amplifier. Audio surveillance may be prohibited by laws that vary by region. Check the laws in your area before using this product for surveillance purposes.
2	MIC	Connect to an audio source. (Line-in or Microphone)
3	USB Port	Connect a USB flash drive or USB mouse. You can upgrade the software by using a USB flash drive or you can control devices which are controlled via network connection by using a USB mouse. Controlling devices by using a USB mouse is supported only for DVRs and network video receivers that provide the function. See below for details about software upgrade.
4	Network Port	Connect a UTP Cat5 cable with an RJ-45 jack. Refer to Chapter 5 — Remote Configuration (p. 33) and the INIT User's Manual for details about network setup.
5	RS485 PTZ Port	Connect to PTZ cameras. Connect TX+/RX+ and TX-/RX- of the PTZ camera to the + and – (respectively) of the network keyboard. Refer to the PTZ camera manufacturer's manual for configuring RS485 connection.
6	RS485 DVR Port	Connect to DVRs. Connect TX+/RX+ and TX-/RX- of the DVR to the + and – (respectively) of the network keyboard. Refer to the DVR User's Manual for configuring RS485 connection.
7	Power In	Connect the power adaptor provided with the network keyboard to the network keyboard. The network keyboard starts booting as soon as power is applied.
8	Joystick Port	Connect a joystick cable. The joystick cable should be connected while the network keyboard is powered down.

CAUTIONS:

- **The network connector is not designed to be connected directly with cable or wire intended for outdoor use.**
- **Do NOT connect or disconnect the joystick cable while the network keyboard is powered up. The network keyboard must be powered down to connect or disconnect the joystick cable; otherwise, it might damage on the network keyboard or cause it to malfunction.**

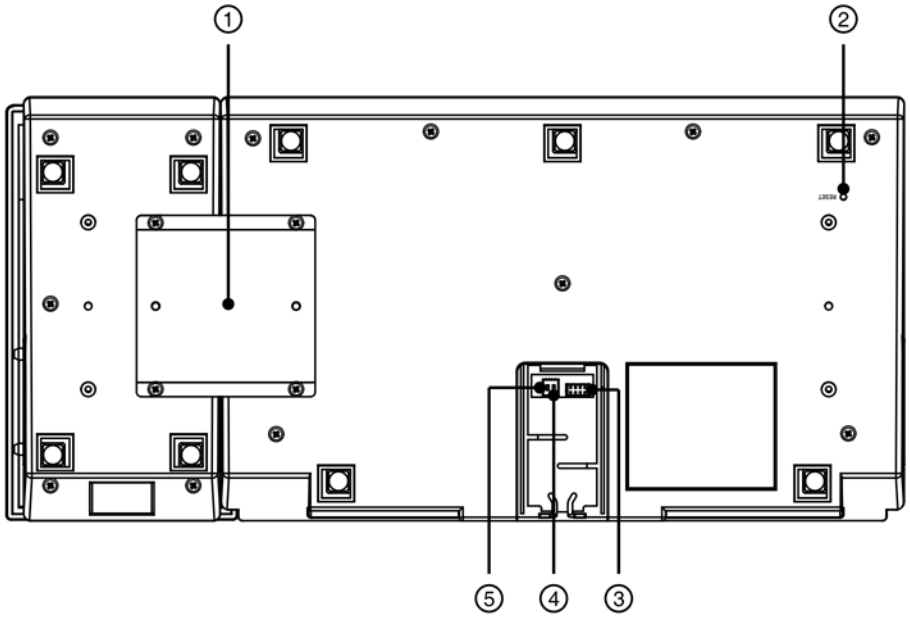
WARNING: ROUTE POWER CORDS SO THAT THEY ARE NOT A TRIPPING HAZARD. MAKE CERTAIN THE POWER CORD WILL NOT BE PINCHED OR ABRADED BY FURNITURE. DO NOT INSTALL POWER CORDS UNDER RUGS OR CARPET. THE POWER CORD HAS A GROUNDING PIN. IF YOUR POWER OUTLET DOES NOT HAVE A GROUNDING PIN RECEPTACLE, DO NOT MODIFY THE PLUG. DO NOT OVERLOAD THE CIRCUIT BY PLUGGING TOO MANY DEVICES INTO ONE CIRCUIT.

Software Upgrade

Copy the upgrade file to a USB flash drive. → Create a text file containing only the upgrade file name and its extension (.rui). Name the text file autorun.txt and save it to the flash drive. → Connect the USB flash drive to the network keyboard. → Enter the LCD menu. → Go to General then to the Upgrade menu. Selecting Upgrade and then Yes causes the network keyboard to load the upgrade file named in the autorun.txt file, and the upgrade is performed automatically. → The network keyboard restarts. → The LCD default screen is displayed after the upgrade is complete. If an error occurs during the software upgrade, refer to Appendix – System Upgrade Error Code (p. 49) for details.

You can upgrade the software remotely by running the INIT program. Refer to the INIT User's Manual for details about remote software upgrade.

1.6 Bottom Panel



No.	Designation	Details
1	Joystick Bracket	Use the provided bracket and screws to attach the joystick to the network keyboard body. The joystick can be attached to either the left or the right of the network keyboard body.
2	Factory Reset Switch	Returns all settings to the original factory settings. Refer to Factory Reset (p. 7) for details.

3	Joystick Input Port	Connect the cable from the joystick. The joystick cable should be connected while the network keyboard is powered down.
4	RS485 DVR Termination (1)	Set the switch to ON if the RS485 communication environment is not good and the connection is not made when controlling a DVR by using RS485 connection.
5	RS485 PTZ Termination (2)	Set the switch to ON if RS485 communication environment is not good and the connection is not made when controlling a PTZ camera by using RS485 connection.

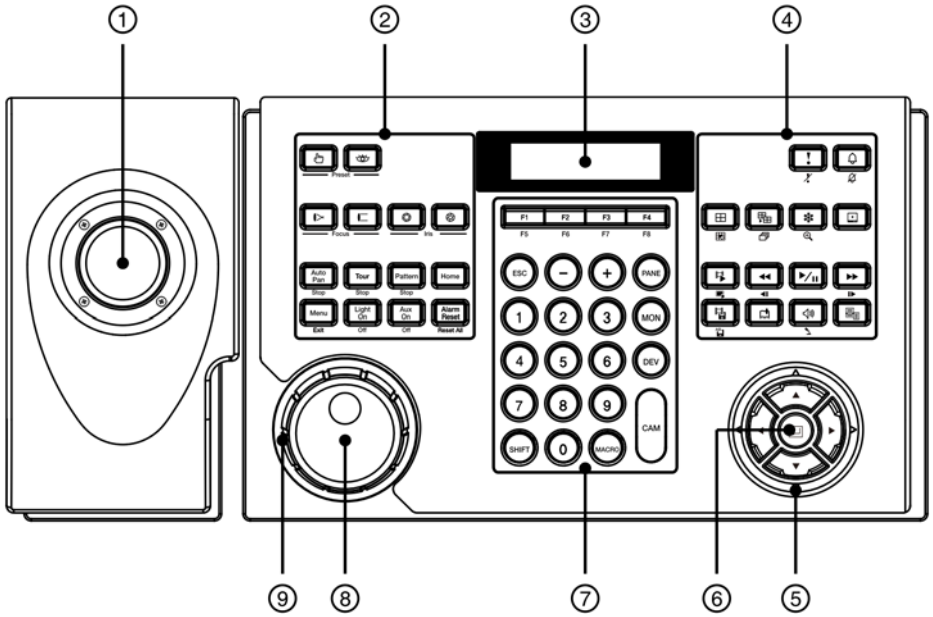
CAUTION: Do NOT connect or disconnect the joystick cable while the network keyboard is powered up. The network keyboard must be powered down when connecting or disconnecting the joystick cable; otherwise, it might damage on the network keyboard or cause it to malfunction.

Factory Reset

CAUTION: When performing a Factory Reset, you will lose any settings you have saved.

You can perform a factory reset while the network keyboard is turned on. Poke a straightened paperclip into the factory reset switch hole and hold the switch for about three seconds. Releasing the reset switch performs factory reset. A factory reset also can be performed remotely by using the INIT program. The network keyboard restarts after completing a factory reset. Refer to INIT User's Manual for details about performing a remote factory reset.

1.7 Top Panel



No.	Designation	Details
1	Joystick	Controls pan and tilt of a PTZ camera by using the stick and zoom of a PTZ camera by using the shuttle ring.
2	PTZ Camera Control Buttons	Controls a PTZ camera by setting up presets or expanded PTZ features. Refer to Appendix – Buttons, PTZ Camera Control (p. 44) for details.
3	LCD Screen	Displays operation commands and LCD menus. Refer to Chapter 3 — Operation (p. 17) and Chapter 4 — LCD Menu Configuration (p. 29) for details.
4	Device Control Buttons	Controls remote devices including DVRs. Refer to Appendix – Buttons, Device Control (p. 46) for details.
5	Arrow Buttons	Allows you to navigate through setup menus or adjust number values during configuration.
6	Enter Button	Selects an item or completes an entry that you make while configuring the network keyboard or devices.
7	Command Buttons	Gives commands. Refer to Appendix – Buttons, Operation Command (p. 44) for details.
8	Jog Dial	Functions only when controlling a DVR. Refer to Appendix – Buttons, Device Control (p. 46) for details.
9	Shuttle Ring	Functions only when controlling a DVR. Refer to Appendix – Buttons, Device Control (p. 46) for details.

Chapter 2 — Installation

For the network keyboard to properly control a device, the device should be registered on the network keyboard. Basic and Advanced modes are supported for registration and control of a device, and the device is controllable only in the mode for which it was registered. When controlling devices by using RS485 connection only, you can register them for the Basic or Advanced modes. When controlling devices by using network and RS485 connection, you can register them for the Advanced mode only. Both the LCD menu and the INIT program can be used to register for the Basic mode, and only the INIT program can be used to register for the Advanced mode.

2.1 PTZ Camera Registration

You can register PTZ cameras to control them by using RS485 connection. Controlling PTZ cameras with different port information is supported only in the Advanced mode.

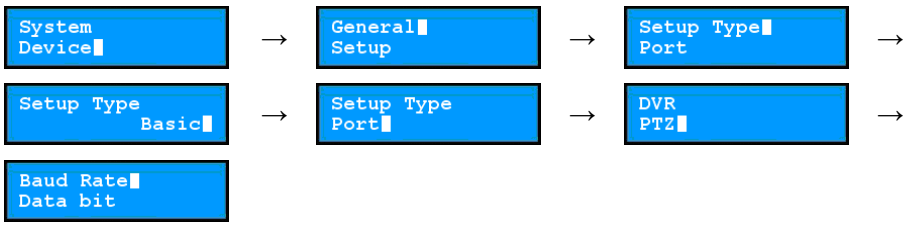
Basic Mode

PTZ cameras can be registered at the network keyboard by using the LCD menus or remotely by using the INIT program. Refer to Chapter 5 — Remote Configuration, 5.3 Device (p. 36) for details about remote registration. The following describes registration using the LCD menus.

1. Connect a PTZ camera to the RS485 PTZ port on the network keyboard referring to the PTZ camera User's Manual.

2. Enter the LCD menu by pressing the SHIFT and ↵ buttons at the same time on the network keyboard. Refer to Chapter 4 — LCD Menu Configuration (p. 29) for details about entering and configuring the LCD menu.

3. Go to the Device → General menu.
   - Setup Type: Select Basic (Basic mode).
   - Port: Select PTZ and set up port information for RS485 communication referring to the settings in the PTZ camera.



4. Return to the Setup menu by pressing the ESC button.
   - Number of CAMs: Enter the number of cameras connected to the network keyboard.
   - 485ID, Model: Set up the RS485 ID and model number of the PTZ camera for RS485 communication. The RS485 ID is used to distinguish the camera from other cameras when controlling it with a network keyboard, so each camera must have a unique RS485 ID. Refer to Appendix – PTZ Camera Model Number (p. 48) for details about the model number of each PTZ camera.

Advanced Mode

PTZ cameras can be registered on the network keyboard remotely by using the INIT program. Refer to Chapter 5 — Remote Configuration, 5.3 Device (p. 36) for details about remote registration.

2.2 DVR System Registration

You can register a DVR to control it by using RS485 or network connection. In the Basic mode, the DVR's system ID set in each DVR is required to control the DVR. In the Advanced mode, a user-defined IDs registered in the network keyboard are required to control the DVRs.

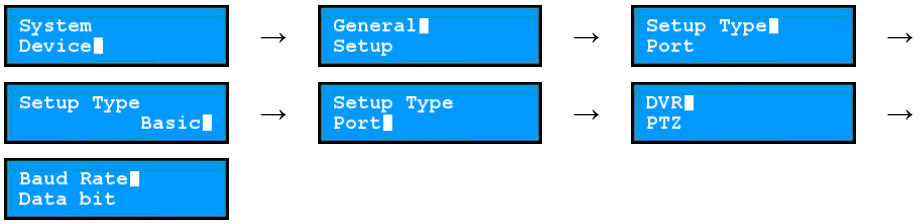
Basic Mode

You can control a DVR with the DVR's system ID after setting up the port information for RS485 communication without registering the DVR. Refer to Chapter 5 — Remote Configuration, 5.3 Device (p. 36) for details about remote setup. The following describes registration using the LCD menus.

1. Connect a DVR to the RS485 DVR port on the network keyboard referring to the DVR User's Manual.

2. Enter the LCD menu by pressing the SHIFT and ↵ buttons at the same time on the network keyboard. Refer to Chapter 4 — LCD Menu Configuration (p. 29) for details about entering and configuring the LCD menu.

3. Go to the Device → General menu.
   - Setup Type: Select Basic (Basic mode).
   - Port: Select DVR and set up the port information for RS485 communication referring to the settings in the DVR.



4. Check the DVR's system ID set in the DVR. You must change the DVR's system ID in the DVR if the system ID is used by more than one DVR or is set to "0." The system ID is used to distinguish the DVR from other DVRs when controlling it with a network keyboard, so each must have a unique system ID.

Advanced Mode

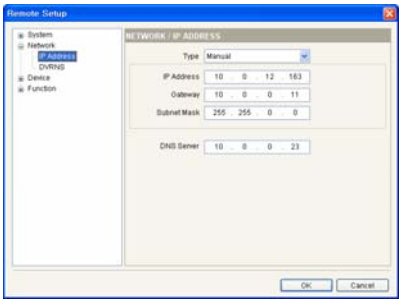
DVRs can be registered on the network keyboard remotely by using the INIT program. Refer to Chapter 5 — Remote Configuration, 5.3 Device (p. 36) for details about the remote registration.

1. Connect a DVR to the RS485 DVR port on the network keyboard by using RS485 connection or connect it to a network.

2. Run the INIT program and connect to the network keyboard to register the DVR. Refer to the INIT User's Manual for details about the INIT program.

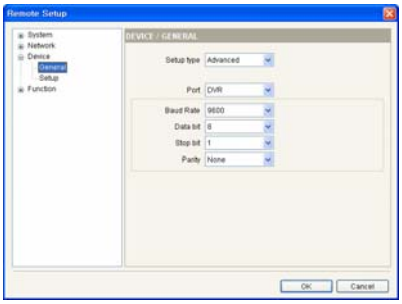
3. Go to the following menus: Setup → Remote Setup → Network → IP Address

   Set up the network keyboard's network connection information.



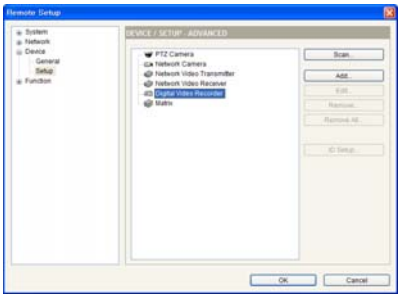
4. Go to the following menus: Setup → Remote Setup → Device → General

   Select Advanced from the Setup Type drop-down list. If the DVR is connected to the network keyboard by using RS485 connection, set up the port information for RS485 communication.



5. Go to the following menus: Setup → Remote Setup → Device → Setup

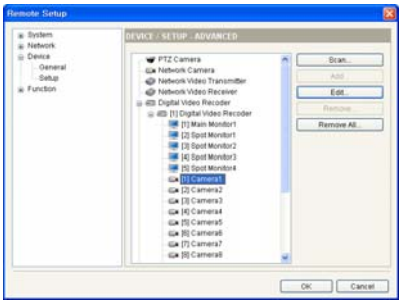
   5.1. Click Digital Video Recorder in the device list and the Add button to register a DVR.



   5.2. Set up the registration information and click the OK button.

   - ID: The network keyboard assigns the ID automatically when the DVR is registered, and you can change the ID. The ID is used to distinguish the DVR from other devices when controlling it with a network keyboard, so each must have a unique ID.
   - Connection: Select RS485 or Ethernet depending on the connection type.
     - RS485: Enter the DVR's system ID set in the DVR if the DVR is connected to the network keyboard by using RS485 connection. You must change the DVR's system ID in the DVR if the system ID is used by more than one DVR or is set to "0." The system ID is used to distinguish the DVR from other DVRs when controlling it with a network keyboard, so each must have a unique system ID.
     - Ethernet: Enter the IP address, port numbers (Control Port: Watch port), user ID and password for connection to the DVR if the DVR is connected to a network. The user ID and password are for connection to the DVR and you can use any user ID and password registered on the DVR. You must log on as a user with the authority to perform the function(s) when controlling the DVR. If another user is logged on to the DVR, the current user must log off from the DVR, and the new user with the proper authority must log on to the DVR.

5.3. Click the Digital Video Recorder pull-down list in the device list, then the registered DVR's pull-down list. A list of monitors and cameras supported by the DVR is displayed.
- [ID] Main Monitor 1, [ID] Main Monitor 2: Displays the monitor ID and type (Main Monitor 1: Main Monitor or Primary Monitor, Main Monitor 2: Secondary Monitor).
- [ID] Spot Monitor No.: Displays the monitor ID, monitor type and the Spot Out number of the DVR.
- [ID] 'Camera Name': Displays the ID and name of the camera.



5.4. Click a monitor or a camera in the list and the Edit button. Set up the monitor or camera information.
- ID: The network keyboard assigns the ID automatically when the DVR is registered, and you can change the ID. The ID is used to distinguish the monitor or camera from other monitors and cameras when controlling it with a network keyboard, so each must have a unique ID.
- Type: Set up the type of camera.
  - Fixed: Select if the camera is not a PTZ camera.
  - PTZ Camera: Select if the camera is a PTZ camera.

2.3 Network Matrix System Registration

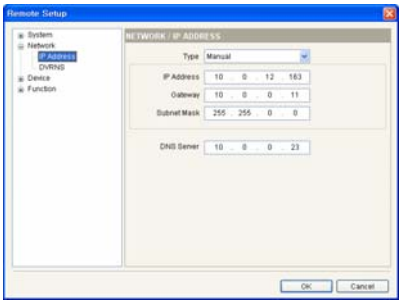
You can register the network video transmitters, network cameras and network video receivers to control them by using network connection. The devices can be controlled only in the Advanced mode by using the INIT program and not in the Basic mode.

1. Connect a network device to a network.

2. Run the INIT program and connect to the network keyboard to register the device. Refer to the INIT User's Manual for details about the INIT program.

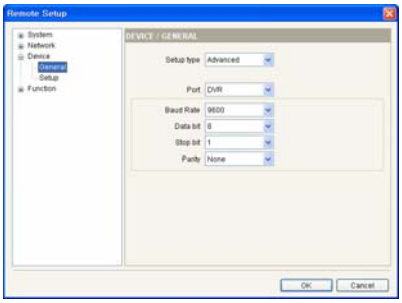
3. Go to the following menus: Setup → Remote Setup → Network → IP Address

   Set up the network keyboard's network connection information.



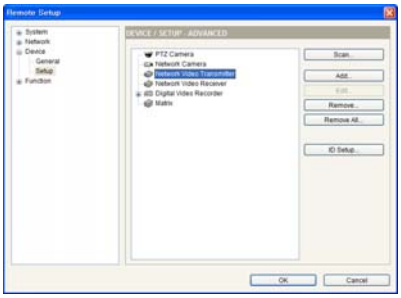
4. Go to the following menus: Setup → Remote Setup → Device → General

   Select Advanced from the Setup Type drop-down list.



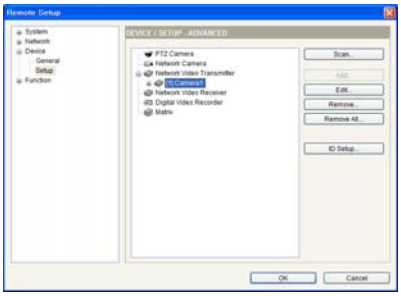
5. Go to the following menus: Setup → Remote Setup → Device → Setup

   5.1. Click Network Camera, Network Video Transmitter or Network Video Receiver in the device list and the Scan or Add button to register the device.



   5.2. Set up the registration information and lick the OK button.
   - ID: The network keyboard assigns the ID automatically when the device is registered, and you can change the ID. The ID is used to distinguish the device from other devices when controlling it with a network keyboard, so each must have a unique ID.
   - Connection: Select Ethernet and enter the IP address, port numbers (transmitter: Watch port, receiver: Control port), user ID and password for connection to the network device.

   5.3. Click the Network Camera, Network Video Transmitter or Network Video Receiver pull-down list in the device list, then the registered device's pull-down list. A list of monitors or cameras supported by the device is displayed.
   - [ID] Main Monitor 1: Displays the monitor ID and type.
   - [ID] 'Camera Name': Displays the ID and name of the camera.



   5.4. Click a monitor or a camera in the list and the Edit button. Set up the monitor or camera information.
   - ID: The network keyboard assigns the ID automatically when the device is registered, and you can change the ID. The ID is used to distinguish the monitor or camera from other monitors and cameras when controlling it with a network keyboard, so each must have a unique ID.
   - Type: Set up the type of camera.
     - Fixed: Select if the camera is not a PTZ camera.
     - PTZ Camera: Select if the camera is a PTZ camera.

2.4 MMX System Registration

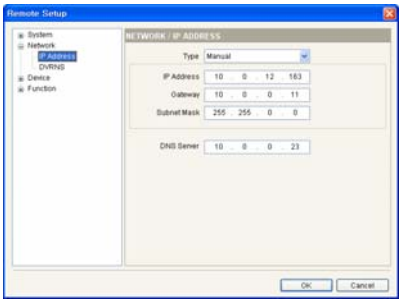
You can register MMXs to control them by using network connection. An MMX can be controlled only in the Advanced mode by using the INIT program and not in the Basic mode.

1. Connect an MMX to a network.

2. Run the INIT program and connect to the network keyboard to register the MMX. Refer to the INIT User's Manual for details about the INIT program.

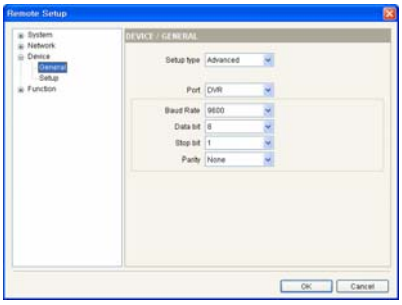
3. Go to the following menus: Setup → Remote Setup → Network → IP Address

   Set up the network keyboard's network connection information.



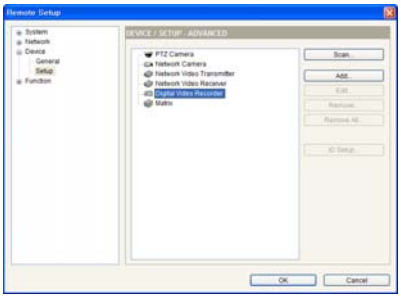
4. Go to the following menus: Setup → Remote Setup → Device → General

   Select Advanced from the Setup Type drop-down list.



5. Go to the following menus: Setup → Remote Setup → Device → Setup

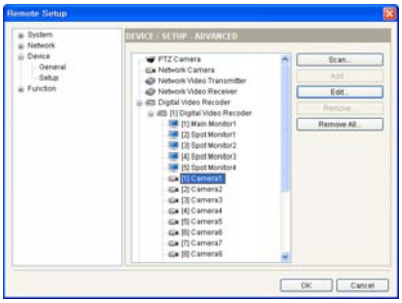
   5.1. Click Digital Video Recorder in the device list and the Add button to register a DVR connected to the MMX. You can control the DVRs with a network keyboard.



   5.2. Set up the registration information and click the OK button.
   - ID: The network keyboard assigns the ID automatically when the DVR is registered, and you can change the ID. The ID is used to distinguish the DVR from other devices when controlling the DVR with a network keyboard, so each must have a unique ID.
   - Connection: Select Ethernet and enter the IP address, port numbers (Control Port: Watch port), user ID and password for connection to the DVR.

5.3. Click the Digital Video Recorder pull-down list in the device list, then the registered DVR's pull-down list. A list of monitors and cameras supported by the DVR is displayed.

- [ID] Main Monitor 1, [ID] Main Monitor 2: Displays the monitor ID and type (Main Monitor 1: Main Monitor or Primary Monitor, Main Monitor 2: Secondary Monitor).
- [ID] Spot Monitor No.: Displays the monitor ID, monitor type and the Spot Out number of the DVR.
- [ID] 'Camera Name': Displays the ID and name of the camera.

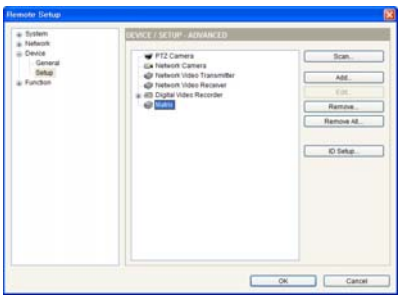


5.4. Click a camera in the list and the Edit button. Set up the camera information.

- ID: The network keyboard assigns the ID automatically when the DVR is registered, and you can change the ID. The ID is used to distinguish the camera from other cameras when controlling it with a network keyboard, so each must have a unique ID.
- Type: Set up the type of camera.
  - Fixed: Select if the camera is not a PTZ camera.
  - PTZ Camera: Select if the camera is a PTZ camera and select the device that controls the PTZ camera.

6. Go to the following menus: Setup → Remote Setup → Device → Setup

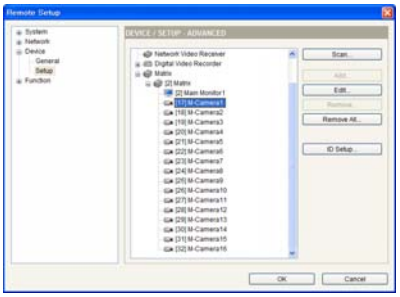
Click Matrix in the device list and the Scan or Add button to register an MMX.



6.1. Set up the registration information and click the OK button.

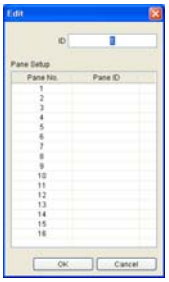
- ID: The network keyboard assigns the ID automatically when the MMX is registered, and you can change the ID. The ID is used to distinguish the MMX from other devices when controlling it with a network keyboard, so each must have a unique ID.
- Spot Monitor: Select to control spot monitors connected to the master and slave MMXs.
- Slave MMX: Select the number of slave MMXs daisy-chained to the master MMX. The slave MMXs are registered automatically when the master MMX is registered.
- Spot MMX Monitor: Select the number of spot monitors connected to spot MMXs that are connected to the master and slave MMXs (Not available when you select Spot monitors above).
- IP Address, Control Port, User ID, Password: Enter the IP address, port number, user ID and password for connection to the MMX.

6.2. Click the Matrix pull-down list in the device list, then the registered MMX's pull-down list. A list of monitors and cameras supported by the MMX is displayed.



- [ID] Main Monitor 1: Displays the monitor ID and type.
- [ID] Spot Monitor No.: Displays the monitor ID, monitor type and the Spot Out number of the master or slave MMXs.
- [ID] Spot MMX Monitor No.: Displays the monitor ID, monitor type and the Spot Out number of the spot MMX.
- [ID] 'Camera Name': Displays the ID and name of the camera connected to the master and slave MMXs.

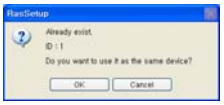
6.3. Click a monitor in the list and the Edit button. Set up the monitor ID. The network keyboard assigns the ID automatically when the MMX is registered, and you can change the ID. The ID is used to distinguish the monitor from other monitors when controlling it with a network keyboard, so each must have a unique ID.



6.4. Click a camera in the list and the Edit button.

- When the camera is connected to the Video In port on the MMX through a DVR Main Out port:
  - ID: The network keyboard assigns the ID automatically when the MMX is registered, and you can change the ID. The ID is used to distinguish the camera from other cameras when controlling it with a network keyboard, so each must have a unique ID.
  - Type: Select Device Output and select a DVR which the camera is connected to from the Output Device drop-down list.

- When the camera is connected to the Video In port on the MMX through a DVR Loop Out port:
  - ID: Set the camera ID the same as the camera ID set in the DVR connected to the MMX. Otherwise, you will not be able to control the camera. When clicking the OK button, a message box is displayed to confirm using the existing ID. Click the OK button to complete the changes.
  - Type: The same camera settings used when registering the DVR connected to the MMX are applied to the camera after the ID setting is complete.



Chapter 3 — Operation

You can control devices by using RS485 and network connection with the network keyboard. The devices should be registered on the network keyboard properly, and you can control the devices in the Basic mode or in the Advanced mode depending on the device's registration mode on the network keyboard. Refer to Chapter 2 — Installation (p. 9) and Chapter 5 — Remote Configuration (p. 33) for details about registration of the devices.

3.1 Overview

The network keyboard is operated by operation commands entered using the command buttons. Refer to Appendix – Buttons, Operation Command (p. 44) for details about the command buttons.

NOTE: Do NOT operate the network keyboard while any remote connection is made to the network keyboard. Otherwise, the network keyboard might not work properly.

LCD Display

LCD Display	Explanation
	• Displays a default screen.
	• Indicates the number or ID of a monitor, pane, device or camera to control is selected. Pressing a command button allows you to control the device. • The network keyboard receives commands in the following order: MON (Monitor) → PANE (Pane) → DEV (Device) → CAM (Camera). You can give a new command without cancelling the current command and starting all over again if the new command is for the same monitor, pane, device or camera as the previous command. Just press the number or ID button, then the command button. For example, entering the 1 → MON → 1 → CAM commands displays video from the camera [1] on the monitor [1], and entering the 2 → CAM command without cancelling the current command displays video from the camera [2] on the same monitor [1].
	• Indicates the monitor ID → MON command is entered. You can control a device that the monitor is connected to. If the connected device is an MMX, controlling the device is supported only for a main monitor 1.

 	• Indicates the pane number or ID → PANE command is entered. The PANE command is supported only for a main monitor 1 connected to a network video receiver or MMX, and you can control a device that the monitor is connected. • When entering the MON → PANE commands, press the pane number of a main monitor 1, and the PANE command is displayed as a small letter "p" on the LCD screen. • When entering the PANE command without the MON command, press the pane ID set in the network keyboard, and the PANE command is displayed as a capital letter "P" on the LCD screen. The pane ID provides a shortcut to a specific pane. When entering the 'pane ID' → PANE command, the network keyboard functions the same as when entering the 'main monitor 1 ID' → MON → 'pane number' → PANE commands.
	• Indicates the device ID → DEV command is entered. You can control the selected device.
 	• Indicates the camera number or ID → CAM command is entered. You can control the selected camera. • When entering the DEV → CAM commands, press the camera number of the device, and the CAM command is displayed as a small letter "c" on the LCD screen. • When entering the MON → CAM commands or the PANE → CAM commands, press the camera ID set in the network keyboard, and the CAM command is displayed as a capital letter "C" on the LCD screen.

Locking Buttons

Pressing the SHIFT and ESC buttons at the same time locks the buttons on the network keyboard. You can set up the buttons to be locked after a preset time of inactivity on the network keyboard. This can be done by using the LCD menu or the INIT program. This function does not work if a User password has not been set up or if the button lock time is set to Never. Refer to Chapter 4 — LCD Menu Configuration, 4.3 Setup Menu, System (p. 30) or Chapter 5 — Remote Configuration, 5.1 System (p. 33) for details about setting up the user password and button lock function.

The network keyboard will not receive any commands and any given commands will be cancelled when the buttons are locked. To unlock the buttons, the User password must be entered.

1. Press the SHIFT and ESC buttons at the same time.

2. The buttons are locked. Press the ↵ button to unlock the buttons.

3. Press the user password and press the ↵ button.

4. The buttons are unlocked.

Cancelling a Command

Pressing the ESC button after pressing an ID or number button cancels the entry and returns to the previous command. Pressing the ESC button after pressing a command button cancels the command and returns to the default screen.

1. Press the camera ID after selecting a monitor.

2. Pressing the ESC button cancels the entry and returns to the previous command.

3. Press the camera ID.

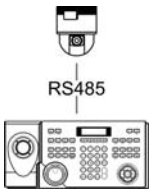
4. Press the CAM button.

5. Video from the selected camera is displayed on the monitor. Pressing the ESC button cancels the command and returns to the default screen.

6. You can enter a new command.

3.2 PTZ Camera Control

You can control PTZ cameras by using RS485 connection. Refer to Appendix – Buttons (p. 44) for details about each control button.



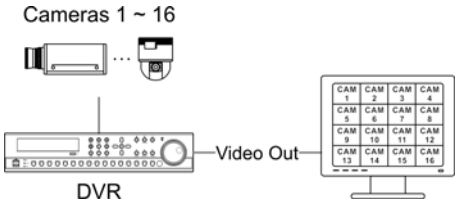
1. Press the camera ID. If you control the camera in the Basic mode, press the 485 ID instead of the camera ID.

2. Press the CAM button. You can control the camera; use the PTZ control buttons.

3.3 DVR System Control

You can control DVRs and connected PTZ cameras to the DVRs by using RS485 or network connection. You must log on as a user with the authority to perform the function(s) when controlling DVRs and connected PTZ cameras to the DVRs. If another user is logged on to the DVR, log the current user must log off from the DVR, and the new user with the proper authority must log on to the DVR. Otherwise, the DVR and connected PTZ cameras to the DVR will be controlled based on the authority of the first user. Refer to Appendix – Buttons (p. 44) for details about each control button.

Controlling a PTZ Camera

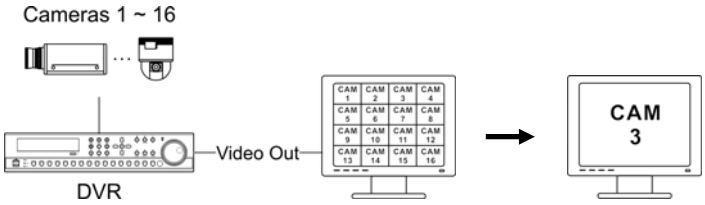


1. Press the camera ID.

2. Press the CAM button. You can control the camera; use the PTZ control buttons.

Controlling a DVR

Example I (Basic or Advanced Mode)



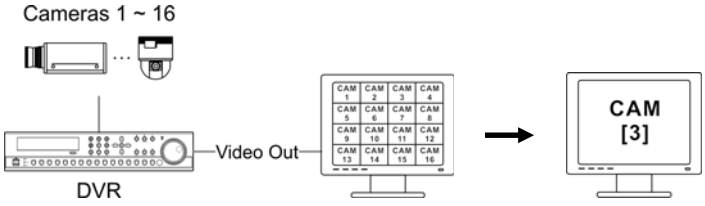
1. Press the DVR ID. If you control the DVR in the Basic mode, press the DVR's system ID. You must check the DVR's system ID at the DVR.

2. Press the DEV button. You can control the DVR in the main monitor 1; use the device control buttons.

3. Press the camera number of the DVR.

4. Press the CAM button. Video from the camera is displayed on the main monitor 1 connected to the DVR, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Example II (Advanced Mode)



1. Press the monitor ID.

2. Press the MON button. You can control the DVR that the monitor is connected to; use the device control buttons.

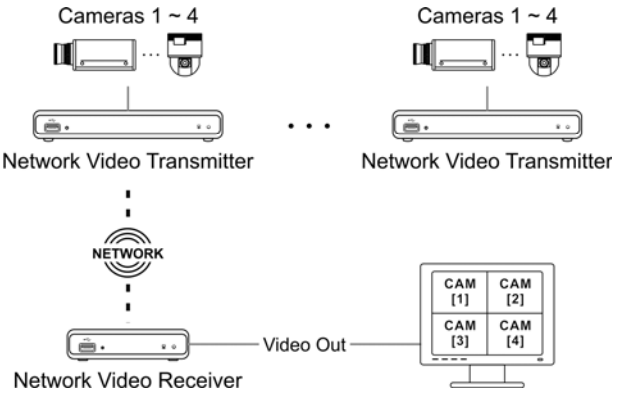
3. Press the camera ID.

4. Press the CAM button. Video from the camera is displayed on the selected monitor, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

3.4 Network Matrix System Control

You can control the network video transmitters, network cameras and network video receivers by using network connection. Refer to Appendix – Buttons (p. 44) for details about each control button.

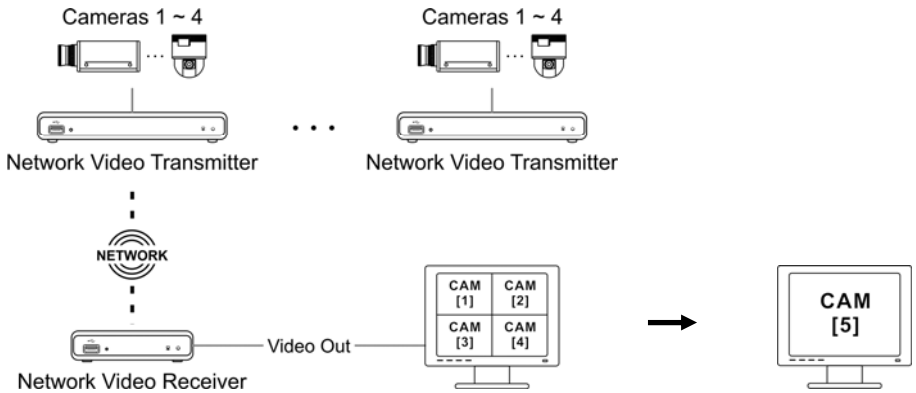
Controlling a PTZ Camera



1. Press the camera ID.

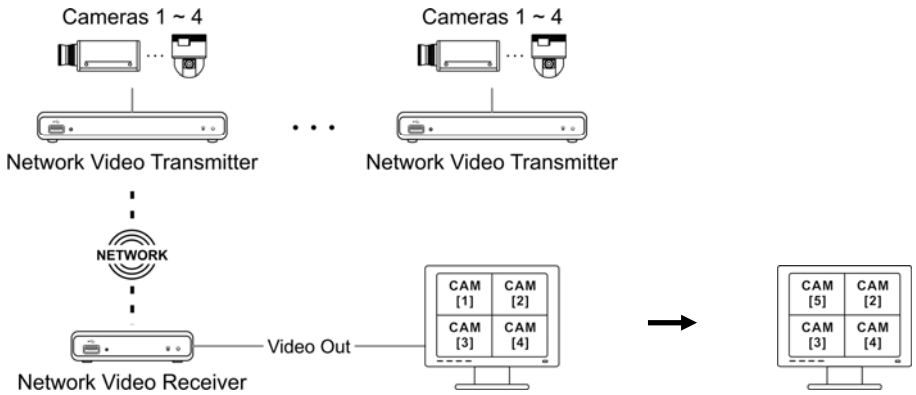
2. Press the CAM button. You can control the camera; use the PTZ control buttons.

Controlling a Camera on a Specific Monitor



Select Devices: 6	1. Press the monitor ID.
M006	2. Press the MON button. You can control the network video receiver that the monitor is connected to; use the device control buttons and a USB mouse.
M006 5	3. Press the camera ID.
M006 C005	4. Press the CAM button. Video from the camera is displayed on the selected monitor, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Controlling a Camera on a Specific Pane

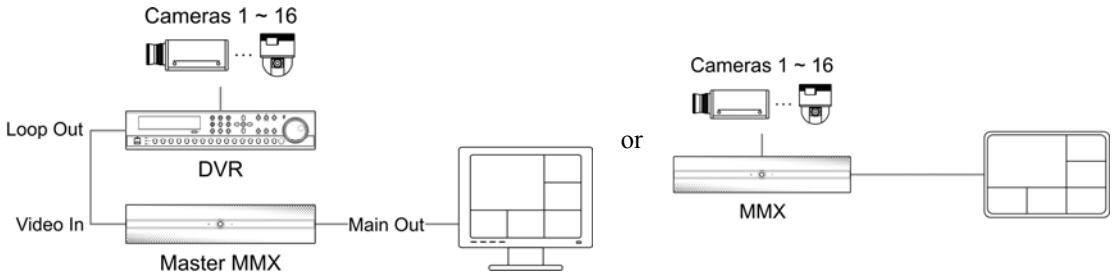


Select Devices: 6	1. Press the monitor ID.
M006	2. Press the MON button. You can control the network video receiver that the monitor is connected to; use the device control buttons and a USB mouse.
M006 1	3. Press the pane number.
M006 p001	4. Press the PANE button.
M006 p001 5	5. Press the camera ID.
M006 C005 p001	6. Press the CAM button. Video from the camera is displayed in the selected pane, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

3.5 MMX System Control

You can control MMXs, connected DVRs to the MMX, and connected PTZ cameras to the MMXs or DVRs by using network connection. You must log on as a user with the authority to perform the function(s) when controlling DVRs and connected PTZ cameras to the DVRs. If another user is logged on to the DVR, the current user must log off from the DVR and the new user with the proper authority must log on to the DVR. Otherwise, the DVR and connected PTZ cameras to the DVR will be controlled based on the authority of the first user. Refer to Appendix – Buttons (p. 44) for details about each control button.

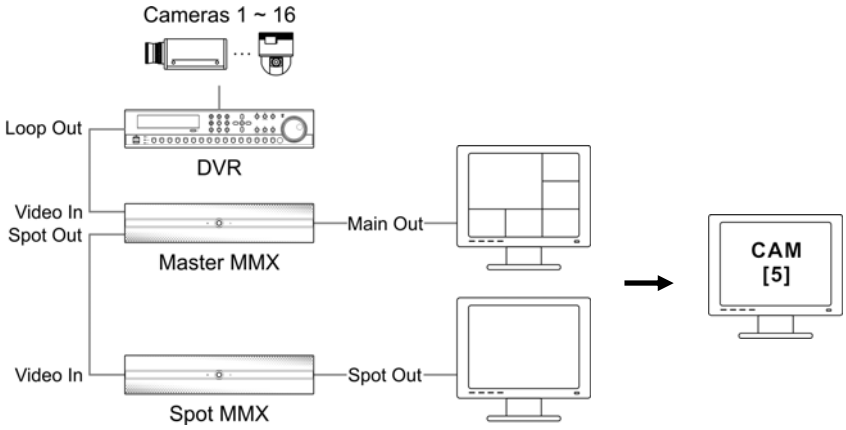
Controlling a PTZ Camera



1. Press the camera ID.

2. Press the CAM button. You can control the camera; use the PTZ control buttons.

Controlling a Camera on a Specific Monitor



1. Press the monitor ID.

2. Press the MON button. If the monitor is a main monitor 1, you can control the MMX that the monitor is connected to; use the device control buttons.

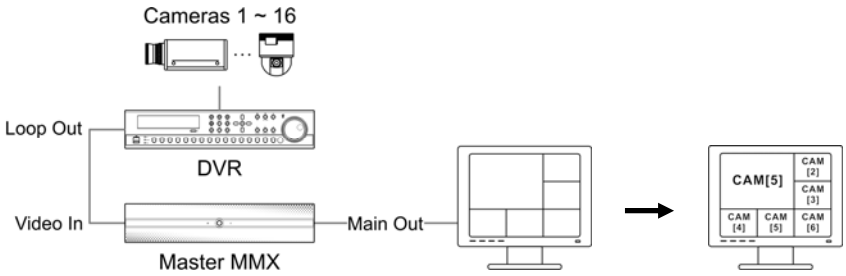
3. Press the camera ID.

4. Press the CAM button. Video from the camera is displayed on the selected monitor, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Controlling a Camera on a Specific Pane

Example I

You can control a camera in a specific pane on the main monitor 1.



1. Press the main monitor 1 ID.

2. Press the MON button. You can control the MMX that the monitor is connected to; use the device control buttons.

3. Press the pane number.

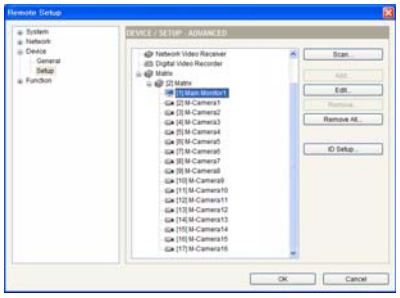
4. Press the PANE button.

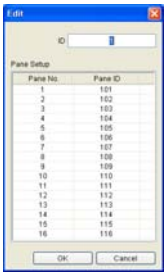
5. Press the camera ID.

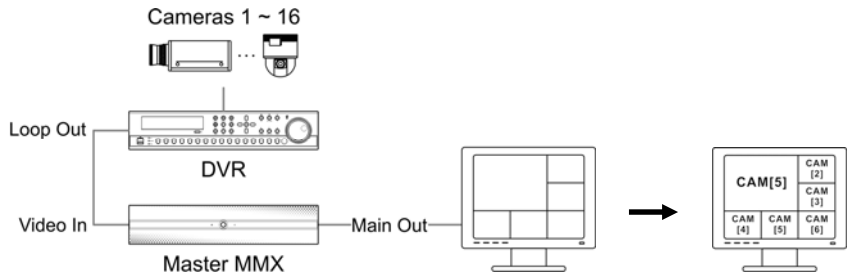
6. Press the CAM button. Video from the camera is displayed in the selected pane, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Example II

You can control a camera in a specific pane on the main monitor 1 by pressing a pane ID without pressing the monitor ID. For this control to function, a unique pane ID should be set up for each pane of a main monitor 1 connected to the MMX. You can set up a unique pane ID by using the INIT program. Run the INIT program → Connect to the Remote Setup menu of the network keyboard → Set up the main monitor 1.







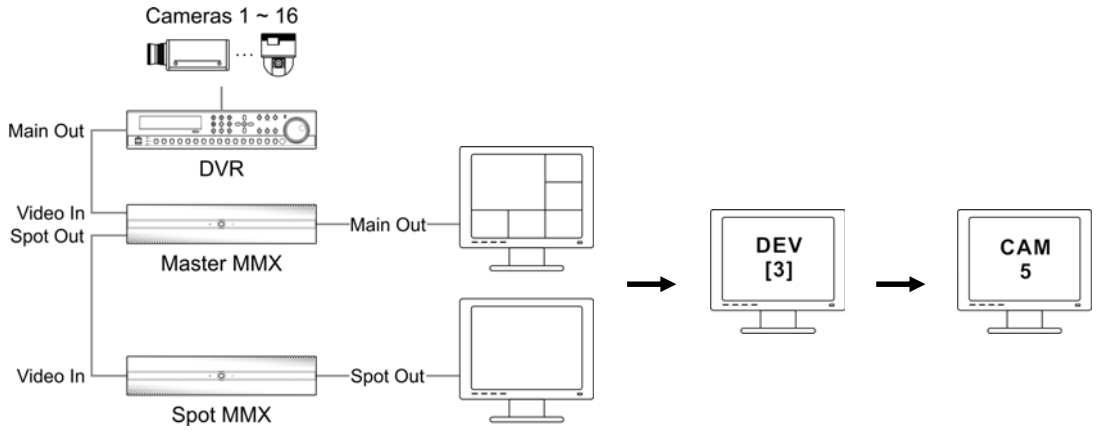
1. Press the pane ID.

2. Press the PANE button. You can control the MMX that the monitor is connected to; use the device control buttons.

3. Press the camera ID.

4. Press the CAM button. Video from the camera is displayed in the selected pane, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Controlling a DVR on a Specific Monitor

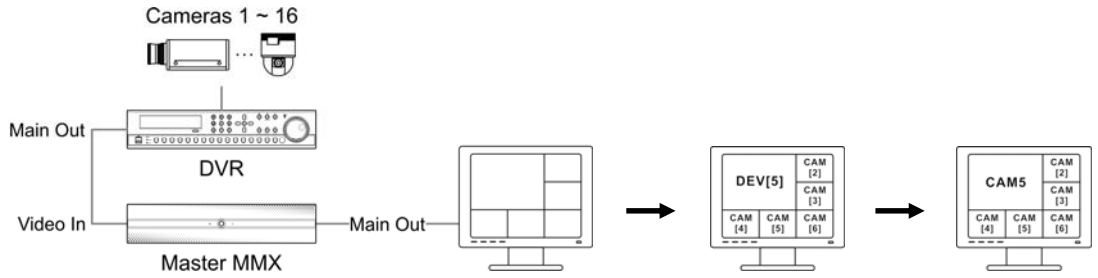


Select Devices: 6	1. Press the monitor ID.
M006	2. Press the MON button. If the monitor is a main monitor 1, you can control the MMX that the monitor is connected to; use the device control buttons.
M006 3	3. Press the DVR ID.
M006 D003	4. Press the DEV button. The DVR's main monitor 1 screen is displayed on the selected monitor, and you can control the DVR; use the device control buttons.
M006 D003 5	5. Press the camera number of the DVR.
M006 D003 c005	6. Press the CAM button. Video from the camera is displayed on the selected monitor, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Controlling a DVR in a Specific Pane

Example I

You can control a DVR in a specific pane of the main monitor 1.



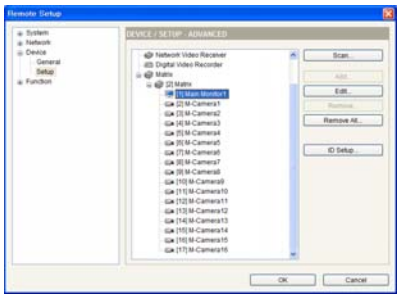
Select Devices: 6	1. Press the main monitor 1 ID.
M006	2. Press the MON button. You can control the MMX that the monitor is connected to; use the device control buttons.
M006 1	3. Press the pane number.
M006 p001	4. Press the PANE button.
M006 p001 5	5. Press the DVR ID.
M006 D005 p001	6. Press the DEV button. The DVR's main monitor 1 screen is displayed in the selected pane, and you can control the DVR; use the device control buttons.
M006 D005 p001 5	7. Press the camera number of the DVR.

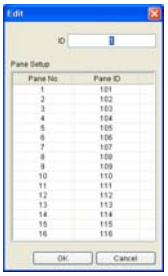
M006 D005 c005
P001

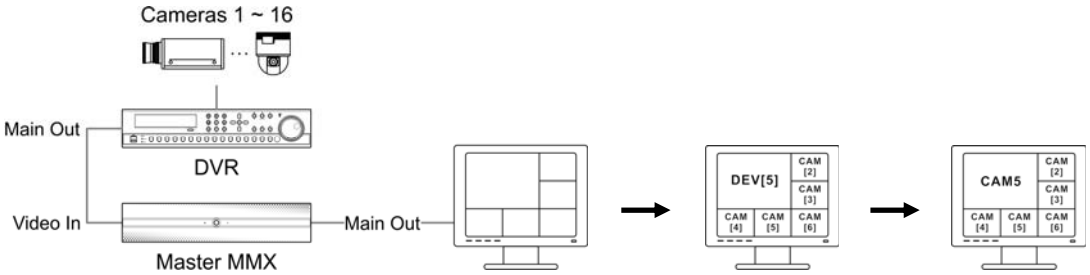
8. Press the CAM button. Video from the camera is displayed in the selected pane, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Example II

You can control a DVR in a specific pane on the main monitor 1 by pressing a pane ID without pressing the monitor ID. For this control to function, a unique pane ID should be set up for each pane of a main monitor 1 connected to the MMX. You can set up a unique pane ID by using the INIT program. Run the INIT program → Connect to the Remote Setup menu of the network keyboard → Set up the main monitor 1.







Select Devices:
1

1. Press the pane ID.

P001

2. Press the PANE button. You can control the MMX that the monitor is connected to; use the device control buttons.

P001 5

3. Press the DVR ID.

D005
P001

4. Press the DEV button. The DVR's main monitor 1 screen is displayed in the selected pane, and you can control the DVR; use the device control buttons.

D005
P001 5

5. Press the camera number of the DVR.

D005 c005
P001

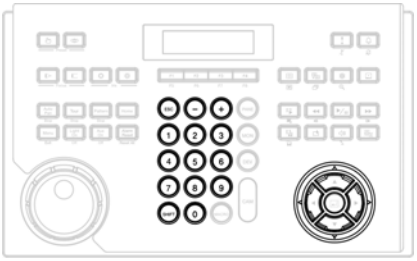
6. Press the CAM button. Video from the camera is displayed in the selected pane, and you can control the camera if the camera is a PTZ camera; use the PTZ control buttons.

Chapter 4 — LCD Menu Configuration

The menu on the LCD screen allows you to set up the system or register devices to be controlled for the Basic mode. System setup and device registration can also be done remotely by using the INIT program. Refer to Chapter 5 — Remote Configuration (p. 33) for details about the remote setup and registration.

NOTE: When controlling devices in the Advanced mode, you cannot register the devices by using the LCD menu and must register the devices by using the INIT program.

4.1 Buttons for LCD Menu Configuration



- ESC: Returns to the previous menu without applying the setting changes. Pressing the button repeatedly until the screen displays Save Setup allows you to save or cancel the changes.
- +, – / Arrow buttons (◀▲▶▼): Navigates through the setup menus or adjusts number values.
- 0 to 9: Enters a number value (0 to 999).
- SHIFT: Enters the LCD menu when pressing the button along with the ↵ button.
- ↵ : Goes to the submenu, selects an item or completes an entry that you have made.

4.2 Entering or Exiting LCD Menu

1. Press the SHIFT and ↵ buttons at the same time.

2. Enter the admin password by using the number buttons, and press the ↵ button. There is no factory default password.

3. Pressing the ↵ button enters the LCD menu.

4. You can change the settings.

5. Pressing the ESC button until the screen displays Save Setup and selecting Yes by pressing the ↵ button saves the settings and exits the LCD menu.

4.3 Setup Menu

System

General	Version	Displays the software version.
	Password	Sets up the Admin password or User password (max. four digits). Entering the current password allows you to enter a new password; there is no factory default password. The Admin password is required to connect to the network keyboard and set up the LCD menu. The User password is required to control the network keyboard.
	Default Settings	This setting will only be used for the rare occasions that you want to return all the settings to the original factory settings. Refer to Chapter 1 — Introduction, Factory Reset (p. 7) for details.
	MAC Address	Displays the MAC address.
Button	Beep	Setting the value to ON causes the network keyboard to beep when pressing buttons.
	Lock	Locks the buttons. The buttons will be locked after a preset time of inactivity on the network keyboard. To unlock the buttons, the User password must be entered. This feature does not function if a User password has not been set up or the time is set to "0."
LCD	Contrast	Adjusts the contrast of the LCD screen. (1: Low, 2: Medium, 3: High)
	Backlight Off	Adjusts the LCD screen backlight time in minutes. The backlight will be turned off after a preset time of inactivity on the network keyboard. This feature does not function if the time is set to "0."
Audio	Volume	Adjusts the volume of audio input and output.
Upgrade		Setting the value to Yes upgrades the software. Refer to Chapter 1 — Introduction, Software Upgrade (p. 6) for details.

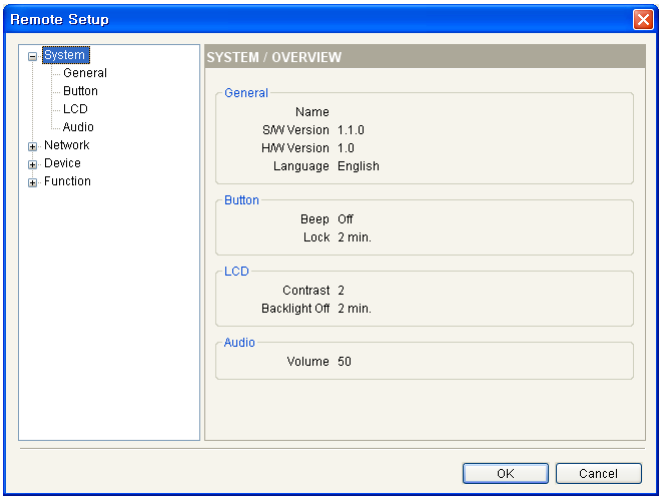
Device

General	Setup Type	Selects the setup mode. Select Basic or Advanced when controlling devices by using RS485 connection only, or select Advanced when controlling devices by using network and RS485 connection. When selecting the Advanced mode, you only can register devices by using the INIT program.
	Port	Selects the device to control by using RS485 connection and sets up the RS485 port information for RS485 communication. The port information is set up separately for PTZ cameras and DVRs. When registering for the Advanced mode, you can set up the port information of DVRs only. If you want to set up the port information of PTZ cameras when registering for the Advanced mode, you must run the INIT program. If the port information of PTZ cameras is different from each other, the cameras can only be controlled in the Advanced mode and not in the Basic mode.

Setup	Number of CAMs	Enters the number of connected cameras when controlling PTZ cameras by using RS485 connection.
	485ID, Model	Sets up the RS485 ID and model number of a PTZ camera for RS485 communication. The RS485 ID is used to distinguish the camera from other cameras when controlling it with a network keyboard, so each must have a unique RS485 ID. Check the PTZ camera's model number in the Appendix – PTZ Camera Model Number (p. 48).

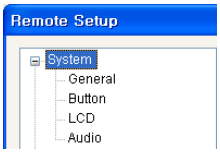
Chapter 5 — Remote Configuration

Remote Setup allows you to change all settings of a network keyboard. Run the INIT program, select a network keyboard and click the Setup icon on the Main screen. Select Remote Setup from the Setup menu and the Remote Setup screen appears.



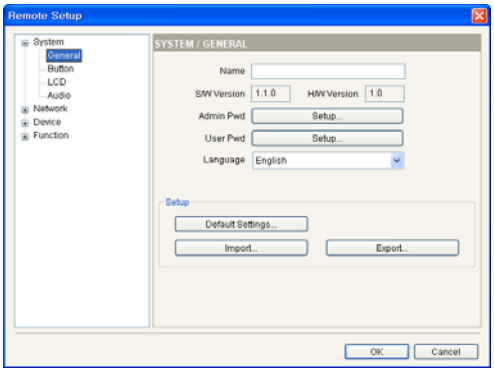
Clicking a menu on the left side of the Remote Setup screen displays the current settings for that menu on the right side of the screen. Clicking a submenu under each menu allows you to change the settings. Clicking the OK button closes the Remote Setup screen and applies the changes.

5.1 System



You can change system information, import or export all setting values, change a password, set up beep and lock functions for the network keyboard buttons and adjust audio volume.

General

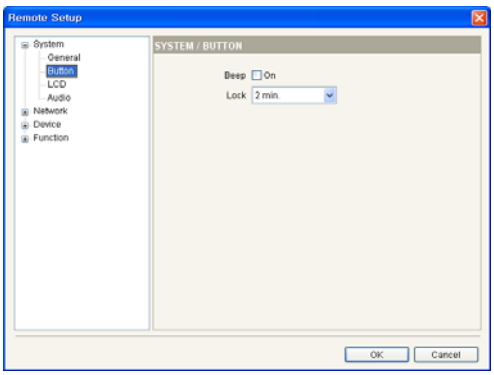


- Name: Enter the network keyboard's name (up to 31 characters including spaces).
- SW Version, HW Version: These fields display the network keyboard's software and hardware versions.
- Admin Pwd: Click to change a password (max. four digits) for connection to the network keyboard and LCD menu setup. Entering the current password allows you to enter a new password. There is no default password.
- User Pwd: Click to change a password (max. four digits) for control of the network keyboard. Entering the current password allows you to enter a new password. There is no default password.
- Language: Select the language to be used during the remote setup.

- Setup
  - Default Setup…: Click to return all except network settings to the original factory settings.
  - Import Setup…: Click to apply the settings saved as a .dat file format to the network keyboard. A setup screen appears allowing you to select the setup file. You can select whether or not to include network settings when the setup is applied. Refer to the Network menu for details about the network settings.
  - Export Setup…: Click to save the current network keyboard settings as a .dat file format. A setup screen appears allowing you to name the setup file.

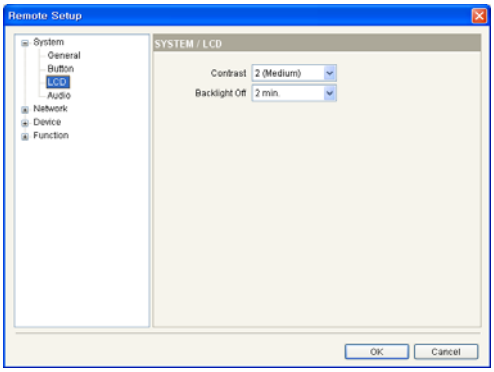
NOTE: Do NOT check the *Include Network Setup* box when the network settings of the setup file are used in another network keyboard. Otherwise, the connection to the network keyboard might not be made properly.

Button



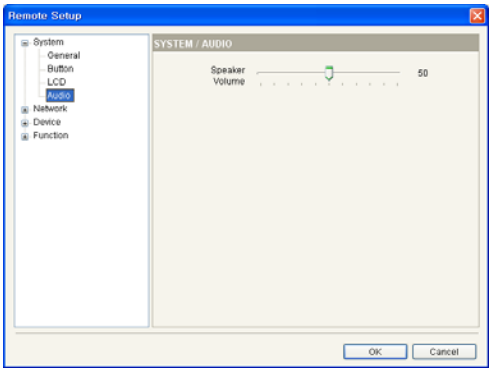
- Beep: Check the box to beep when pressing the buttons on the network keyboard.
- Lock: The buttons on the network keyboard will be locked after a preset time of inactivity on the network keyboard. To unlock the button, the User password must be entered. This feature does not function if the User password is not set up or the time is set to Never.

LCD



- Contrast: Select the network keyboard's LCD screen contrast from the drop-down list.
- Backlight Off: The LCD screen backlight turns off after a preset time of inactivity on the network keyboard. This feature does not function if the time is set to Never.

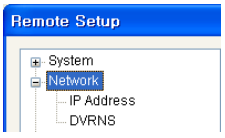
Audio



Adjust the volume of audio output by using the slide bar.

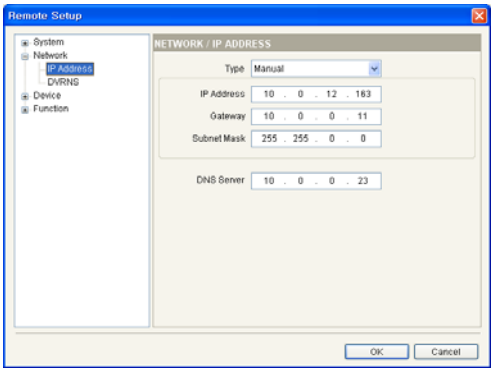
NOTE: Audio might not work properly if the network keyboard is performing other functions during two-way audio communication.

5.2 Network



You can change the network settings and set up the DVRNS information.

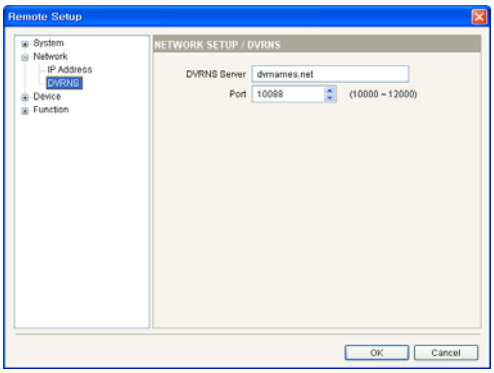
IP Address



- Type: Select the type of network configuration. Ask your network provider for details about the network connection type and connection information for the network keyboard.
  - Manual: Select when the network keyboard is using a static IP address for network connection, and set up LAN parameters manually.
  - DHCP: Select when the network keyboard is networked via DHCP (Dynamic Host Configuration Protocol). Click the OK button, and a temporary IP address is automatically assigned to the network keyboard. The network keyboard periodically will be issued a new IP address automatically.
- DNS Server: Enter the IP address of the DNS server. If you set up the DNS server, the domain name of the server can be used instead of the IP address when the DVRNS server is set up. Ask your Internet service provider for the IP Address of the DNS Server.

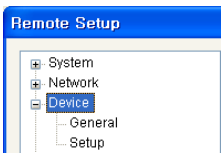
DVRNS

If the device uses the DVRNS feature, enter the information of the DVRNS server that the device to control is registered on.



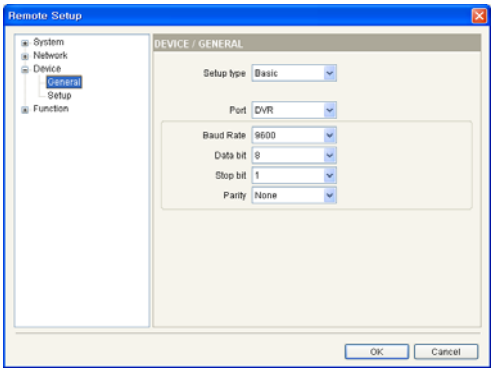
- DVRNS Server: Enter the IP address or domain name of the DVRNS server acquired from the device's network administrator. You can use the domain name instead of IP address if you set up the DNS server during the IP Address setup.
- Port: Set up the port number of the DVRNS server.

5.3 Device



You can set up the setup mode and register PTZ cameras, network cameras, network video transmitters, network receivers, DVRs and MMXs to be controlled with a network keyboard.

General



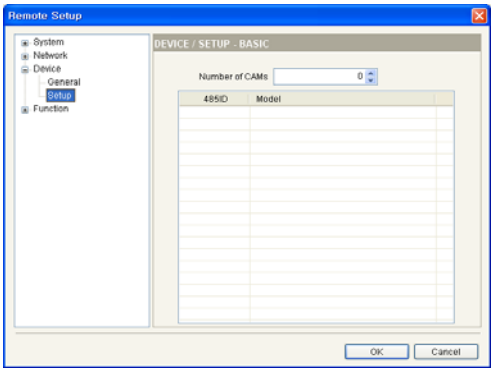
- Setup type: Select Basic or Advanced when controlling devices by using RS485 connection only, or select Advanced when controlling devices by using network and RS485 connection.
  – Port: Select the device to be controlled by using RS485 connection from the drop-down list, and set up the port information for RS485 communication. The port information is set up separately for PTZ cameras and DVRs. If the PTZ cameras have different port information from each other, you must register the cameras for the Advanced mode and not for the Basic mode. Refer to the following Setup, General – Advanced Mode (p. 37) for details about registration for the Advanced mode.

Setup

The setup screen varies depending on the type of setup set during the Device – General setup.

General – Basic Mode

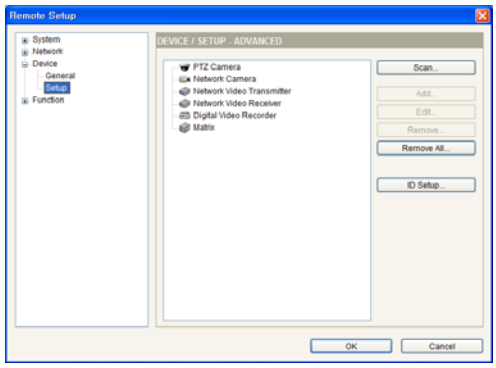
You can control devices only by using RS485 connection when registering the devices for the Basic mode. If the device is a DVR, this setting will set up RS485 port information. Refer to 5.3 Device, General (p. 37) for details about setting up the RS485 port information of DVRs.



- Number of CAMs: Set up the number of connected cameras.
- 485 ID: Set up the RS485 ID of PTZ cameras for RS485 communication. The RS485 ID is used to distinguish the camera from other cameras when controlling it with a network keyboard, so each must have a unique RS485 ID. You can change the RS485 ID by clicking the field and adjusting the number.
- Model: Click the field and select the PTZ camera's model from the PTZ camera list.

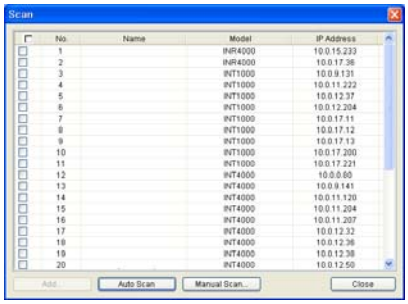
General – Advanced Mode

You can control devices by using network and RS485 connection when the devices are registered for the Advanced mode.



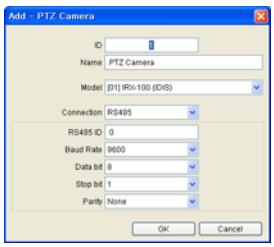
- Scan, Add, Edit: See below.
- Remove, Remove All: Select a device in the list and click the Remove button to delete it. Clicking the Remove All button deletes all devices from the list.

- Scan: Click to find and list the devices connected to a network. (Network cameras, network video transmitters, network video receivers and MMXs only)



  - Auto Scan: Click to reload the list of devices networked via LAN.
  - Manual Scan: Click the button and enter the IP address of the device to find out if the device is networked via WAN or if it is temporarily disconnected from the network.
  - Add: You can register the listed device on the network keyboard. Check the devices in the list and click the button, a setup screen appears. Enter the user ID and password for connection to the selected devices and click the OK button. Do not check the Apply to all box if the user ID and password of the selected devices are different from each other, and the OK button changes to Next. Click the Next button and enter the connection information for each device. Refer to the following section for details about the information setup.

- Add: Select the device in the device list and click the button to register the device on the network keyboard. A setup screen appears allowing you to enter the connection information for the device.



PTZ Camera

Network Camera, Network Video Transmitter, Network Video Receiver

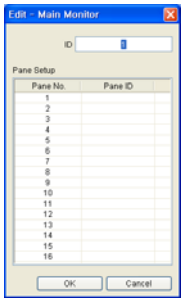
DVR

MMX

  - ID: The network keyboard assigns the ID automatically when the device is registered, and you can change the ID. The ID is used to distinguish the device from other devices when controlling it with the network keyboard, so each must have a unique ID.
  - Name: Set up a device's name for your reference.

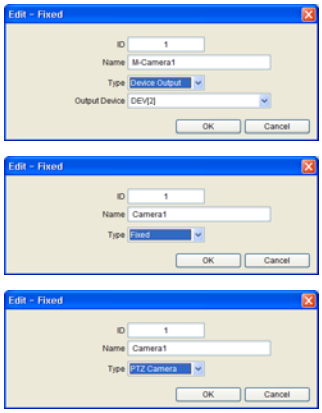
– Camera Channels: Select the number of camera channels supported by the device.
– Main Monitors: Select the number of main monitor outputs supported by the DVR. If the DVR does not support a Secondary Monitor, select 1. If the DVR supports a Secondary Monitor, select 2.
– Spot Monitors: Select the number of spot outputs supported by the DVR or select to control spot monitors connected to the master and slave MMXs.
– Slave MMX: Select the number of slave MMXs daisy-chained to the master MMX.
– Spot MMX Monitor: Select the number of spot monitors connected to spot MMXs which are connected to the master and slave MMXs (Not available when you select Spot monitors above).
– Connection: Select the device's type of connection to the network keyboard, and configure the settings. Enter the Watch port or Control port set up at the device in the Control Port field. When registering a DVR and the DVR is connected to the network keyboard by using RS485 connection, you will be asked to enter the system ID set in the DVR. If the DVR is a PC-based DVR, select PC DVR.

• Edit: Select a device or the monitor and camera connected to the device in the list and click the button to edit the setting.



Monitor

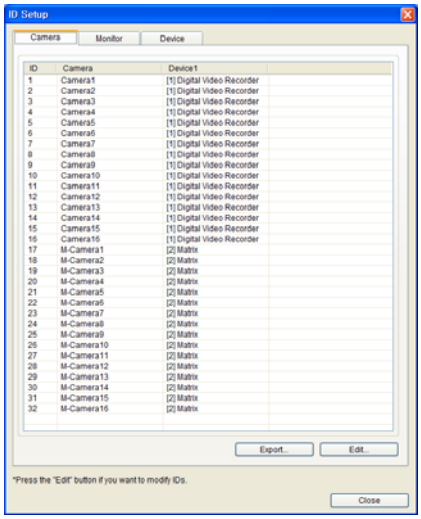
– ID: The network keyboard assigns the ID automatically when the connected device is registered, and you can change the ID. The ID is used to distinguish the monitor from other monitors when selecting it with the network keyboard, so each must have a unique ID.
– Pane ID: Set up a pane ID for each pane on the monitor (Main monitor 1 connected to a network video receiver or MMX only). The pane ID provides a shortcut to a specific pane when selecting the pane with a network keyboard. When giving a 'pane ID' → PANE command, the network keyboard functions the same as when giving 'main monitor 1 ID' → MON → 'pane number' → PANE commands.



Camera

– ID: The network keyboard assigns the ID automatically when the connected device is registered, and you can change the ID. The ID is used to distinguish the camera from other cameras when controlling it with the network keyboard, so each must have a unique ID. If the connected device is an MMX, the camera ID must be the same as the camera ID of the DVR connected to the MMX. Otherwise, two different IDs will be assigned to the one camera. When clicking the OK button, a message box is displayed to confirm using the existing ID. Click the OK button to complete the changes.
– Name: Set up the camera name for your reference.
– Type: Set up the type of camera. Select Device Output and select a DVR if the connected device is an MMX and the Main Out of the DVR is connected to the Video In port on the MMX, and you can control the DVR. Select Fixed if the camera is not a PTZ camera. Select PTZ Camera if the camera is a PTZ camera.

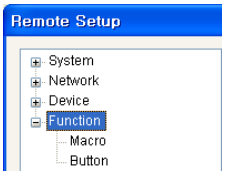
• ID Setup: Click the button to edit the ID or save the ID setting of a device or the monitor and camera connected to the device in the list.



The list of devices connected to the network keyboard or the monitors or cameras connected to the devices is displayed in each tab.

– Export: Saves the information in the list as a file.
– Edit: Allows you to edit the preset ID.

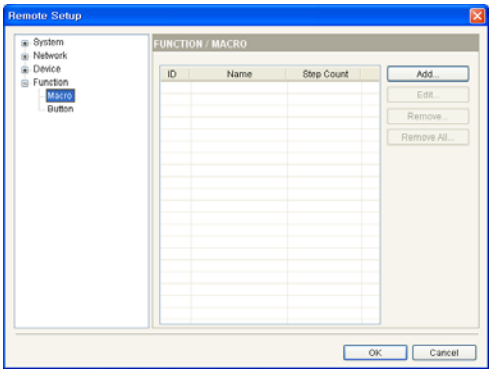
5.4 Function



You can set up a macro function and function buttons.

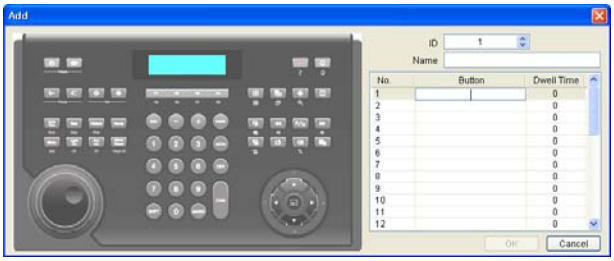
Macro

NOTE: A macro is a preset single instruction that calls a complete series of commands to perform a particular task.



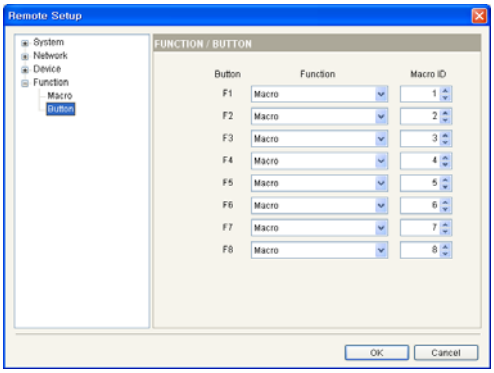
- ID: Displays the macro ID set up when adding the macro.
- Name: Displays the macro name set up when adding the macro.
- Step Count: Displays the number of actions registered on the macro.
- Add: See below.
- Edit: Select a macro in the list and click the button to edit the settings.
- Remove / Remove All: Select a macro in the list and click the Remove button to delete it. Clicking the Remove All button deletes all macros from the list.

- Add: Click to register a macro, and a setup screen appears.



– ID: Assign a unique ID from 1 to 100 to the macro. When giving a 'macro ID' → MACRO command, the network keyboard performs the actions registered on the macro.
– Name: Enter a macro name.
– No.: Displays the order of the operations in the macro. The network keyboard takes actions based on the order in the list when performing the macro.
– Button: Double click the field and click a button on the network keyboard image on the left to assign the operation to perform.
– Dwell Time: Enter dwell time (seconds) for the action to last.

Button



- Button: Displays the function button of the network keyboard.
- Function: Select the function to perform when pressing the function button. Selecting Macro allows the function button to perform the macro. Selecting PTZ CTRL allows the function button to perform the Ctrl feature when controlling a Fastrax PTZ camera.
- Macro ID: Select a macro ID if the macro is associated with the function button. Pressing the function button of the network keyboard performs the preset macro.

Appendix

Troubleshooting

Problem	Possible Solutions
A device cannot be controlled.	• Check the connection. When controlling the device by using RS485 connection, the device should be properly connected to the RS485 port on the network keyboard. When controlling the device by using network connection, both the device and the network keyboard should be connected to the network properly. • Check that the device is registered on the network keyboard properly. When controlling the device in the Basic mode, the device should be registered for the Basic mode. When controlling the device in the Advanced mode, the device should be registered for the Advanced mode.
A PTZ camera cannot be controlled.	• Check the PTZ camera settings in the DVR if the PTZ camera is connected to a DVR. • Check that the PTZ camera is registered on the network keyboard properly if the PTZ camera is connected directly to the to a network keyboard. • Check the camera settings. The type of camera should be set to PTZ Camera. (INIT program → Setup → Remote Setup → Device → Setup → Type of camera: PTZ Camera)
Cannot connect to the INIT program because of lost or incorrect password.	If you have lost the password, do a factory reset and customize all settings again. The factory reset returns all the settings including network settings to the original factory settings. Write down and store the password in a safe place so that you do not need to go through this process.

RS485 Connector Pin Outs

RS485 PTZ Connector

Master Unit			Slave Unit
+	→ To →		TX+/RX+
–	→ To →		TX-/RX-

RS485 DVR Connector

Master Unit			Slave Unit
+	→ To →		TX+/RX+
–	→ To →		TX-/RX-

Buttons

NOTES:

- Buttons function correctly only when the device being controlled supports the functions and when the device is registered on the network keyboard and set up properly.
- In the Operation explanation for buttons, "→" indicates that the buttons are pressed sequentially, and "&" indicates the buttons are pressed at the same time.

Operation Commands

Button	Designation	Operation
1	Number (1 to 9)	• Device number or ID → MON, PANE, DEV, CAM or MACRO : Selects a monitor, pane, device, device or camera to control, or macro to perform.
0	Number (0)	• 0 → DEV → ! : Starts panic recording of all camera channels for all devices. • 0 → DEV → SHIFT & ! : Stops panic recording of all camera channels for all devices. • 0 → DEV → SHIFT & 🔔 : Deactivates alarm out of all alarm-out channels for all devices.
SHIFT	Shift	• SHIFT → Button : Performs the secondary function for buttons that support two functions. • SHIFT & ESC : Locks the network keyboard buttons. • SHIFT & ↵ : Enters the LCD menu.
ESC	ESC	• ESC : Cancels a command during its operation or returns to the previous menu during the menu configuration.
MON	Monitor	• Monitor ID → MON : Allows you to select the monitor.
PANE	Pane	• Pane No. or ID → PANE : Allows you to select the entered pane.
DEV	Device	• Device No. or ID → DEV : Allows you to control the entered device.
CAM	Camera	• Camera No. or ID → CAM : Allows you to control the entered camera.
MACRO	Macro	• Macro ID → MACRO : Performs the selected macro.
– / +	– / +	• Selects the previous or next monitor, pane, device or camera during the command operation. • Navigates through setup menus or adjusts number values during menu configuration.
F1	Function (1 to 8)	• Performs a preset function.

PTZ Camera Control

NOTES:

- Depending on the PTZ camera specifications, some functions may not work. Refer to the PTZ camera manufacturer's manual for details about each feature.
- When a PTZ camera is connected to another device, some functions may not be supported depending on the specifications and version of the device.

Button	Designation	Operation
	Set Preset	• 'Preset No.' → [ ] (hold the button): Sets the preset position by assigning the preset number to the current position.
	View Preset	• 'Preset No.' → [ ] : Moves the PTZ camera to the position set for the preset number. • (0) → CAM → 'Preset No.' → [ ] : Moves all PTZ cameras at the same time to the position set in the preset number (Fastrax model only). For this function to work properly, the PTZ camera's port information for RS485 communication should be set up as the same as the network keyboard's (9600/8/1/None in the Advanced mode).
	Focus Near	• Focuses on near or far image.
	Focus Far	
	Iris Open	• Opens or closes the iris of a camera lens.
	Iris Close	
Auto Pan	Auto Pan	• [Auto Pan] : Performs the auto pan set for number 1. • 'Auto Pan No.' → [Auto Pan] : Performs the auto pan set for the selected number. • SHIFT & [Auto Pan] : Stops the auto pan.
Tour	Tour	• [Tour] : Performs the tour set for number 1. • 'Tour No.' → [Tour] : Performs the tour set for the selected number. • SHIFT & [Tour] : Stops the tour.
Pattern	Pattern	• [Pattern] : Performs the pattern set to the number 1. • 'Pattern No.' → [Pattern] : Performs the pattern set to the selected number. • SHIFT & [Pattern] : Stops the pattern.
Home	Home	• Performs the home function.
Menu	Menu	• [Menu] : Displays the PTZ menu. • SHIFT & [Menu] : Closes the PTZ menu.
Light On	Light	• [Light On] : Performs the light function. • SHIFT & [Light On] : Releases the light function. • (0) → CAM → [Light On] : Sets all cameras to night shot (B&W) mode (Fastrax model only). For this function to work properly, the PTZ camera's port information for RS485 communication should be set up as the same as the network keyboard's (9600/8/1/None for the Advanced mode). • (0) → CAM → SHIFT → [Light On] : Sets all cameras to normal (Color) mode (Fastrax model only). For this function to work properly, the PTZ camera's port information for RS485 communication should be set up as the same as the network keyboard's (9600/8/1/None for the Advanced mode).
Aux On	Auxiliary	• [Aux On] : Performs the auxiliary function. • SHIFT & [Aux On] : Releases the auxiliary function.
Alarm Reset	Alarm Reset	• Resets the alarm.

	Joystick	• Stick : Controls the pan and tilt. • Shuttle ring : Controls the zoom.

Device Control

NOTE: The buttons work only when the device being controlled is selected and it supports the functions. Refer to the device User's Manual for details about each feature.

Button	Designation	Operation
!	Panic Recording On	• [!] : Starts panic recording of all camera channels for the device. • (0) → [DEV] → [!]: Starts panic recording of all camera channels for all devices registered on the network keyboard.
	Panic Recording Off	• [SHIFT] & [!] : Stops panic recording of all camera channels for the device. • (0) → [DEV] → [SHIFT] & [!]: Stops panic recording of all camera channels for all devices registered on the network keyboard.
🔔	Alarm Out On	• 'Alarm-out device No.' → [🔔] : Activates the alarm out of the selected alarm-out channel.
	Alarm Out Off	• 'Alarm-out device No.' → [SHIFT] & [🔔] : Deactivates alarm out of the selected alarm-out channel. • [SHIFT] & [🔔] : Deactivates alarm out of all alarm-out channels for the device. • (0) → [DEV] → [SHIFT] & [🔔] :Deactivates alarm out of all alarm-out channels for all devices registered on the network keyboard.
⊞	Display	• [⊞] : Pressing the button repeatedly changes the screen layout based on the device's settings. • 'Layout No.' → [⊞] : Displays video in the selected screen layout (No. 1: full, No. 2: 2x2, No. 3: 3+3, No. 4: 3x3, No. 5: 2+8, No. 6: 1+12, No. 7: 4x4, No. 8: PIP, No. 9: 1+5 and No. 10: 1+12). When controlling an MMX, the layout number preset in the MMX is used.
	Cameo	• [SHIFT] & [⊞] : Enters the cameo mode.
	Group	• [▣] : Moves to the next camera group. • 'Group No.' → [▣] : Changes the screen to the selected camera group.
	Sequence	• [SHIFT] & [▣] : Performs sequence monitoring.
❄	Freeze	• [❄] : Freezes the current live images on the screen.
	Zoom	• [SHIFT] & [❄] : Zooms in the current live images on the screen.
⊡	Spot	• [⊡] : Displays the spot menu or monitor menu. • 'Spot monitor No.' → [⊡] → 'Camera No.' → [↵] : Displays video from the selected camera on the selected spot monitor.
	Search	• [▶] : Searches video recorded in the device.
	Triplex	• [SHIFT] & [▶] : Enters the triplex mode.
◀◀	Fast Backward Play	• [◀◀] : Plays video backward at high speed in the playback mode.
	Backward Step	• [SHIFT] & [◀◀] : Plays video backward image-by-image in the playback mode.

	Play, Pause	• [▶/II] : Plays back video. Pressing the button while playing back video pauses the video.
	Fast Forward Play	• [▶▶] : Plays video forward at high speed in the playback mode.
	Forward Step	• [SHIFT] & [▶▶] : Plays video forward image-by-image in the playback mode.
	Clip Copy	• [ ] : Performs the one-touch clip copying when in live monitoring mode and general clip copying when in playback mode. • [SHIFT] & [ ] : Performs A-B (section) clip copying when in playback mode.
	Bookmark	• [ ] : Adds the current playback point to the bookmark list. • 'Bookmark No.' → [ ] : Moves to the selected bookmark point.
	Group Monitoring	• 'Group No.' → [ ] : Displays video from the selected camera group.
	Enable Speaker/Mic	• [ ] : Plays audio from the remote site through the speaker when controlling a camera. Pressing the button again disables the function. • [SHIFT] & [ ] : Sends audio to the remote site through the microphone when controlling a camera. Pressing the button again disables the function. • Receiving and sending audio is available only when controlling a device that supports two-way audio communication via network connection. This feature might not work properly if the network keyboard is performing other functions during two-way audio communication.
	Menu	• Displays the device's menu and allows you to change its settings.
	Enter Button ([↵])	• Selects an item or completes an entry that you have made when in the setup mode. • Toggles the zoom size when in the zoom mode while controlling a DVR.
	Arrow Buttons	• Navigates through setup menus or adjusts number values when in setup mode. • ◀ ▶ : Changes the layout group while controlling a DVR. • ▲▼ : Changes the location of the PIP when in the PIP display mode, and increases or decreases the number values when in the setup mode while controlling a DVR.
	Jog Dial	• Functions only when controlling a DVR. • Changes the zoom size when in the zoom mode. Turning the Jog Dial clockwise or counterclockwise increases or decreases the zoom size. • Changes the PIP screen size when in the PIP mode. Turning the Jog Dial clockwise when the PIP screen is in the left and counter clockwise when the PIP screen is in the right makes the PIP screen larger. • Increases or decreases the number values when in the setup mode. • Plays video forward or backward image-by-image by turning the jog dial clockwise or counterclockwise when playback video has been paused.

	Shuttle Ring	• Functions only when controlling a DVR. • Plays video when in the playback mode. The shuttle ring is spring loaded and returns to the center position when released. Turning the ring clockwise or counterclockwise plays video forward or backward. The playback speed varies with the amount the ring is turned: fast forward and rewind.

PTZ Camera Model Numbers

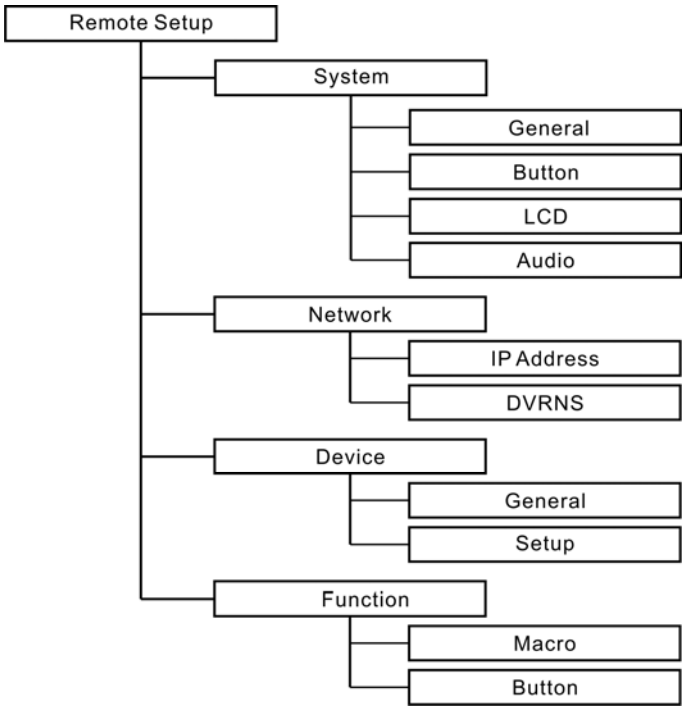
No.	Model	No.	Model
1	IRX-100 (IDIS)	2	WJ-SX550A (Panasonic)
3	SpeedDome (HiTron)	4	D-protocol (Pelco)
5	Receiver/MPU (Sungjin)	6	KTD-312 (Kalatel)
7	Samsung Dome (Samsung)	8	CRR-1660s (Fine)
9	CRD-J6416 (Chilsung)	10	MRX-1000 (Samsung)
11	G3 Basic AutoDome (Philips)	12	Orbiter Microsphere (Ademco video)
13	Delta Dome II/Ultra IV (Sensormatic)	14	Spectra Dome (Pelco)
15	KD6 (Ultrak)	16	SPD 1600 (Samsung Techwin)
17	Zoom Camera (Samsung)	18	WV-CS850/854 (Panasonic)
19	GRU604A (LG Honeywell)	20	PIH-717 (Linlin)
21	HSD-25X (LG Honeywell)	22	Fastrax (HiTron)
23	KD6 Z-Series (Ultrak)	24	VC-C4 (Canon)
25	TK-S576 (JVC)	26	Power Controller (Dongyang)
27	CDC2400 (DynaColor)	28	Ultra VI (Sensormatic)
29	ZC-SD622J (CBC)	30	Siemens SCU (Siemens)
31	PTC-200C/CVAS (ELMO)	32	DRX-500 (Dongyang Unitech)
33	GHSD-7425 Series (GSP)	34	GHSD-7344 Series (GSP)
35	GHSD-7448 Series (GSP)	36	VisionDome (360Vision)
37	Vicon (Vicon)	38	HSDN-251 (Honeywell)
39	HDC-655 (Honeywell)	40	Pacom 2036 (Pacom)
41	CDC 2500 (Costar)	42	VRX-2201 (Inter-M)
43	DY-255RXC (Dongyang)	44	VC-C50i (Canon)
45	DMP-1223 (Tokina)	46	LPT-A100L (LG)
47	SRX-100B (Samsung Techwin)	48	22x AF Zoom (Hitron)
49	SIC722V (Costar)	50	Dennard2060 (Dennard)
51	PTC-250C (ELMO)	52	ORX_1000 (SysMania)
53	NOVUS-C	54	CRX-1401 (ERAESEEDS)
55	Fastrax2 (HiTron)	56	Solaris
57	C-CC501 (TOA)	58	LG Speed Dome
59	PTC-400 (ELMO)	60	CCDA (Siemens)
61	HRX-1000 (Honeywell)	62	GSD series(G4S)
63	A730HM (LG)	64	NIKO (New Born Hightech)
65	PTC-1000 (ELMO)	66	Remote PTZ (IDIS)
67	Fastrax-IIE (HiTron)	68	AUTODOME (BOSCH)
69	N-Control (NOVUS)		

System Upgrade Error Codes

When an error occurs during software upgrade, refer to the following error code.

No.	Description	No.	Description
0	Unknown error	302	Remote upgrade is not authorized.
1	File version error.	303	Saving remote package failed.
3	Software version error.	304	Remote upgrade was cancelled by the user.
4	Kernel version error.	400	USB device mounting failed.
101	The upgrade file was not found.	401	Reading upgrade package on the USB device failed.
102	Extracting package failed.	402	Copying upgrade package from the USB device failed.
105	Invalid package.	403	USB device is not connected.
300	Remote connection failed.	404	USB device is currently in use.
301	Remote network error.	405	The file system is not supported.

Map of Screens (Remote Setup)



Specifications

INPUTS/OUTPUTS	
Network Connectivity	10/100 Mbps Ethernet
Audio Input	1 line in or Microphone
Audio Output	1 line out

CONNECTORS	
Audio In/Out	Mono/Stereo
Ethernet Port	RJ-45
RS-485 PTZ Serial Port	Terminal block
RS-485 DVR Serial Port	Terminal block
USB Port	2 on rear panel (2.0)

GENERAL	
Dimensions (W x H x D)	14.8" x 3.7" x 7.0" (376.9mm x 95mm x 177.6mm)
Shipping Dimensions (W x H x D)	17.9" x 6.3" x 10.0" (455mm x 160mm x 255mm)
Unit Weight	2.41 lbs. (1.1Kg)
Shipping Weight	4.71 lbs. (2.1Kg)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 90%
Power Supply	5 VDC, 3A
Power Consumption	Max. 10W
Approval	FCC, CE

Specifications are subject to change without notice.